# EFFECTS OF ICT ADOPTION BY SMME OWNERS ON PRODUCTION IN BOROLONG AREA OF BOTSWANA

**G. CHUBE**

**16629523**

**MINI-DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF BUSINESS ADMINISTRATION FROM THE GRADUATE SCHOOL OF BUSINESS AND GOVERNMENT LEADERSHIP AT THE MAFIKENG CAMPUS OF THE NORTH-WEST UNIVERSITY**

**SUPERVISOR: PROF. T. PELSER**

**MONTH AND YEAR OF SUBMISSION: NOVEMBER 2015**

It all starts here ™

NORTH-WEST UNIVERSITY ®
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT

DECLARATION

I, the undersigned Gosaitse Chube (student number: 16629523), hereby declare that the dissertation is my own original work and that it has not been submitted at any other University for a similar or any other degree award.

…… ……

Signature Date

# ACKNOWLEDGEMENTS

I thank All-mighty God for his guidance, protection and inspiration. Without his endless support I would not have managed to achieve what I have at the moment. My heart-felt gratitude goes to Prof T.G Pelser, my supervisor for being an excellent, committed mentor. His assistance and encouragement helped me to be able to complete my research work. To you all, I express my sincere gratitude.

# DEDICATION

I dedicate this piece of work to my parent, Mrs Linah Chube for her support and inspiration throughout my studies.

# ABSTRACT

Information and communication technology (ICT) has been the main focused of Botswana government to strengthen the small and medium enterprises (SMEs) in the country. This paper investigates the effects of information and communication technology (ICT) within the small and medium enterprise environment (SME) of the Borolong area of Botswana. ICT plays a pivotal role in the current knowledge economy. It is important for SMEs to get involved in this economy so that they can also compete and thrive in the future.

The problem is that SMEs in the Borolong area of Botswana are very slow in terms of adopting ICT into their business so to attain competitive edge. The essence of this study is to show the SMEs of Borolong area the positive that comes along with ICT adoption into their firms hence the information contained in this paper will encourage the SMEs to adopt ICT and increase the rate of ICT adoption. Firms must take advantage of the power of ICT so that the can also be competitive. ICT tools are very essential for the competitiveness of the business.

The article follows a quantitative research approach and uses questionnaires with closed and open-ended questions as a data-gathering method. Sixty seven (67) SMEs were interviewed. Gathered data is analysed using SPSS which is a statistical tool used for data analysis. The study mostly addresses the main research questions which deal with accessibility of ICT tools, drivers of ICT adoption, barriers towards ICT adoption, effects of ICT adoption and lastly it looks at training and funding opportunities available in Botswana. The study is concluded by summarizing all important aspects of the study including limitations of the study, recommendations on how to overcome the barriers and areas for further study are discussed.

The study findings managed to answer all the research questions and find the cause of the research problem. The research problem is that the rate of ICT adoption by SME's owners on production in Borolong area of Botswana is very slow and as such the research wanted to find out what could be the cause of this slow rate of ICT adoption. The study wanted to find out if SMEs in the Borolong area of Botswana have access to ICT tools and the findings revealed that they have access to a limited number of ICT

tools namely radio, cell-phones, telephone landlines and government computers. The study also indicates flexibility of ICT tools as their main drive of ICT adoption. Arrays of barriers are discussed and the study indicates high set-up cost as the reason why there is a slow rate of ICT adoption in the Borolong area. The study also indicates that the government Botswana is assisting SMEs with ICT adoption by providing funding and training assistance. The study answered the main research question by explaining that ICT adoption by SMEs has a positive effect on production and ultimately it will benefit the overall business.

The information contained in this paper will help SMEs and other related stakeholders to work together and improve the rate of ICT adoption in the Borolong area of Botswana. Most importantly it indicates the positives that SMEs can attain through ICT adoption into their firms and this will accelerate the ICT adoption process which has been a problem in the Borolong area of Botswana.

For purposes of this study, Information and Communication Technologies will be interchangeably referred to as either ICT or ICTs and Small and Medium Enterprises will also be referred to as either SME or SMEs. This will be based upon the wide variation of usage of these terms.

KEY WORDS

- Information and communication technology (ICT)
- Small and medium enterprise (SME)
- Adoption
- Production

## TABLE OF CONTENTS

DECLARATION……i
ACKNOWLEDGEMENTS……ii
DEDICATION……iv
ABSTRACT……v
KEYWORDS……vi
TABLE OF CONTENTS……vii
LIST OF TABLES……xi
LIST OF FIGURES……xii
LIST OF ADDENDA……xiv
LIST OF ACRONYMS AND ABBREVIATIONS……xv

**CHAPTER ONE: INTRODUCTION**……1

1.1 Title……1
1.2 Mini-dissertation overview……1
1.3 Research motivation……2
1.3.1 Problem statement……3
1.3.2 Objectives of the research……3
1.3.3 Significance of the study……3
1.3.4 Research questions……4
1.3.5 Delimitations of the study……5
**CHAPTER TWO LITERATURE REVIEW**……6
2.1 Introduction……6
2.2 What is ICT? ……7
2.2.1 Current state of ICT growth in Botswana……8
2.2.2 ICT adoption process by SMEs……9
2.2.3 ICT adoption in Botswana……9
2.2.4 Types of ICT facilities……11
2.2.5 Categorisation of ICT for SMEs……11
2.2.6 Adoption perspective of ICT……13
2.3 What are SMEs?……14
2.3.1 Types of SMEs operating in Botswana……15

2.3.4 Distribution of SMEs industrial projects……...16
2.3.5 The role of Government on SMEs……..17
2.3.6 Contribution of SME sector to Botswana's development…….....18
2.4 Challenges faced by SMEs in Botswana……...19
2.5 Drivers of ICT adoption by SMEs in Botswana……21
2.6 How could SMEs use ICT to be competitive……22
2.7 Availability of funds and training programmes for ICT adoption by SMEs owners……23
2.8 Barriers towards SMEs' adoption of ICT as a competitive tool……..26
2.9 Effects of ICT adoption by SME owners on production……...29
2.10 Accessibility of ICT tools by SMEs……...30
2.11 Theories in technology adoption……...31
2.12 Literature gap……...32
2.13 Conclusion……....32
**CHAPTER THREE RESEARCH METHODOLOGY**……34
3.1 Introduction……34
3.2 Research design……34
3.2.1 The survey area……...34
3.2.2 The study unit……...36
3.2.3 Survey population……...36
3.3 The sampling method……36
3.3.1 Probability sampling……36
3.3.1.1 Simple random sampling……..37
3.3.2 Size of the sample……...37
3.4 Organisation of the survey……38
3.4.1 Design of quantitative research……38
3.4.2 A descriptive research format……38
3.4.3 The questionnaire……39
3.4.3.1 Design of the questionnaire……40
3.4.3.2 Piloting / pre-testing……..42
3.5 Validity and reliability of the Questionnaire……43
3.6 Data-gathering technique……...44
3.6.1 Personal interviews……...44
3.6.2 Accompanying letter from the university……...44

3.7 Data analysis……...45
3.7.1 Editing, coding and processing of data……..……45
3.7.1.1 Data editing……...45
3.7.1.2 Data coding……...45
3.7.1.3 Data-processing and statistical analysis of data……...…….....45
3.8 Reliability of the results……..46
3.8.1 Reliability analysis using the SPSS……..…47
3.9 Ethical considerations……..…47
3.10 Summary of methodology……...…48
**CHAPTER FOUR RESEARCH RESULT AND DISCUSSION**……...49
4.1 Introduction……...…49
4.2 Results……..…….49
4.2.1 Section A: Demographic data of respondents……....49
4.2.1.1 Status of the respondents……....50
4.2.1.2 Gender of the respondents……..51
4.2.1.3 Age group of the respondents……..…52
4.2.1.3 Highest education qualification……...53
4.2.2 Section B: Demographic data of SMEs……..……54
4.2.2.1 Business sector……..…54
4.2.2.2 Number of employees……..55
4.2.2.3 Business annual turnover……..…56
4.2.2.4 Registration of business……...57
4.2.2.5 The number of years the SME has been in operation……58
4.2.3 Section C: Management / Operational activities……...…59
4.2.3.1 Accessibility to ICT tools……..59
4.2.3.2 Drivers of ICT adoption……60
4.2.3.3 Competence in using ICT tools……...61
4.2.3.4 Barriers towards ICT adoption……..…62
4.2.4 Section D: Management / Operational activities……...……..63
4.2.4.1 Funding support by the government……..64
4.2.4.2 Training programmes provided by the government……..……65
4.2.5 Section E: Effects of ICT adoption on SMEs……...…66
4.2.5.1 Effects of ICT adoption by SMEs on production……..…66
4.2.5.2 The value of ICT adoption on the business……..…67

4.2.6 Section F: Recommendations……68
4.2.6.1 Recommendation……..……..68
4.2.6.2 Justification to the above answer……..…69
4.2.6.3 Other forms of assistance that the government should offer....70
4.3 Cross-tabulation of variables……70
4.3.1 Cross-tabulation of annual turn-over and status of respondents…….……71
4.3.2 Cross-tabulation of highest education qualification and competence in using ICT tools……72
4.3.3 Cross-tabulation of accessibility to ICT tools and annual turn-over…....73
4.3.4 Cross-tabulation of number of years in business and accessibility to ICT tools……...…74
4.3.5 Cross-tabulation of competency in using ICT tools and barriers towards ICT adoption……..……75
4.3.6 Cross-tabulation of competency in using ICT tools and drivers of ICT adoption……...76
4.3.7 Cross-tabulation of business registration and government funding……77
4.4 Summary of the empirical study……....77
4.5 Conclusion……...83
**CHAPTER FIVE SUMMARY, RECOMMENDATIONS AND CONCLUSION**…….....85
5.1 Summary of the study……85
5.2 Recommendations……..……..……..88
5.3 Conclusion……..……89
5.4 Limitations of the study…..…….…..……..89
5.5 Areas for further research…….…….……90
REFERENCES…….……..……...……...91

LIST OF TABLES

Table 2.1 Botswana SMEs thresholds……..……14

Table 2.2 SMEs projects in the Borolong area……..…17

Table 3.1 Reliability analysis of the data using SPSS…….….47

Table 4.1 Effects of ICT adoption on production……...66

Table 4.2 The value of ICT adoption on the business……..67

LIST OF FIGURES

Figure 3.1 Map of Botswana……..…35

Figure 4.1 Status of the respondents……..50

Figure 4.2 Gender of respondents……...…51

Figure 4.3 Age of respondents…….……..…52

Figure 4.4 Highest education qualification…….……53

Figure 4.5 Business sector of the SME…….……..…54

Figure 4.6 Number of employees in the business…….55

Figure 4.7 Business annual turnover……..56

Figure 4.8 Registration of business……..…57

Figure 4.9 Number of years the firm has been in operation…….……....58

Figure 4.10 Business accessibility to ICT tools…….59

Figure 4.11 Drivers of ICT adoption…….……...60

Figure 4.12 Competence in using ICT tools……..61

Figure 4.13 Barriers towards ICT adoption……....62

Figure 4.14 Funding support by the government of Botswana……..….64

Figure 4.15 Training programmes provided by the government of Botswana……..65

Figure 4.16 Recommendations……..……69

Figure 4.17 Cross-tabulation of status of respondents and annual turnover……71

Figure 4.18 Cross-tabulation of education qualification and competence in ICT tools...72

Figure 4.19 Cross-tabulation of accessibility to ICT tools and annual turnover…..……73

Figure 4.20 Cross-tabulation of number of years in business and Accessibility to ICT tools……74
Figure 4.21 Cross-tabulation of competence in ICT tools and barriers towards ICT adoption……..75
Figure 4.22 Cross-tabulation of competence in ICT tools and drivers of ICT adoption..76
Figure 4.23 Cross-tabulation of business registration and government funding……..77

LIST OF ADDENDA

Addenda A: Questionnaire covering letters……...……..…..98

Addenda B: Questionnaire……...…99

## LIST OF ACRONYMS AND ABBREVIATIONS

ICT - Information and Communication technology

SME - Small and Medium Enterprises

NDP - Botswana National Development Plan

NICTP - National Information Communication Technology Policy

BTC - Botswana Telecommunication Corporation

PDA - Personal Digital Assistant

ATM - Automated Teller Machines

EFT - Electronic Funds Transfer

LAN - Local Area Network

WAN - Wide Area Network

PI - Product Innovation

ERP - Enterprise Resource Planning

CRM - Customer Relationship Management

SPSS - Statistical Package for Social Sciences

ATTC- Auto Trades Training Centre

DVET- Department of Vocational Education Training

BOBS- Botswana Bureau of Standards

BDC- Botswana Development Corporation

BOCCIM- Botswana Confederation of Commerce, Industry and Manpower

# CHAPTER ONE INTRODUCTION

## 1.1 EFFECTS OF ICT ADOPTION BY SMME OWNERS ON PRODUCTION IN THE BOROLONG AREA OF BOTSWANA

## 1.2 Mini-dissertation overview

Information and communication technology (ICT) plays an important role in the present knowledge economy. It is used globally by many enterprises to attain a competitive edge over their rivals. In order for small and medium enterprises (SME) to compete against big companies, they need to adopt ICT in their operations as this will prove to be vital for their success in the business. However, SMEs are often very slow or reluctant to adopt ICT into their business due to numerous challenges.

This study reviews contemporary literature to discuss SMEs and ICT and explain the present situation in Botswana in terms of ICT adoption by SMEs, drivers, effects and barriers of ICT usage by SMEs. The study further establishes the availability of funds and training programmes for ICT adoption by SMEs owners, it will also look at the accessibility of ICT tools by SMEs in Botswana. The research data were collected from seventy-five SMEs from different villages in the Borolong area of Botswana. This area is situated in the southern part of Botswana in a district called Southern. This was done by using a questionnaire to determine the effects of ICT adoption by SME owners on production.

The context of the study comprises five chapters, chapter one introduces the subject by discussing the mini-dissertation overview and the research motivation. Chapter two is the literature review and it explores the topic of ICT and SMEs in depth and the specific study area was villages of the Borolong area in Botswana. Information supporting the literature was taken from the internet through using search engines like Google scholar, emerald, SA publications and others from books related to the topic. Chapter three deals with research methodology and chapter four deals with data analysis. Chapter five is the conclusion.

## 1.3 Research motivation

The government of Botswana is playing a very active role in encouraging the adoption of ICT among SMEs. It wants to promote economic growth, through human development, creation of employment, poverty eradication and others. This aim could be made possible by the effective adoption of ICT tools by SMEs (Botswana Government, 2012:80).

It has realized the critical role of ICT as an enabler in the quest to realize its socio-economic objectives and translate its vision into reality. According to Dias, Franco and Pereira (2012:24) the importance of ICT in the economy has increased since the 1990s. ICT adoption has brought many positives to businesses globally, for example its adoption has resulted in quick turnaround of production, innovative products and employees can work remotely around the globe (Kalusopa, 2005:414).

Firms are re-engineering their operations and investing a lot of their money specifically for ICT solutions and this is done to take advantage of the consistently ever-changing business environment. Knowledge is the cornerstone of this new environment, and it is mostly called the knowledge economy. Customers in this new era want to buy knowledgeable and innovative products and this can only be achieved through the use of ICT (Modimogale & Kroeze, 2011:02).

Large firms have more financial muscle, more skilled employees, and with all this, they have utilized advantages of ICT to attain a competitive advantage over their rivals. Most governments are encouraging SMEs to use ICT because this will lead to economic growth and they will also thrive in these ever-changing global demands. The government does this because they acknowledge the contribution done by SMEs towards Gross Domestic Product (GDP) and creation of employment opportunities (Dias *et al*., 2012:25).

### 1.3.1 Problem statement

The use of ICT has been recognised as a catalyst for improving firm performance and enabling SMEs in to be competitive and innovative (Procter & Shemi, 2013:11). There remains a gap in the literature to find out the effects of ICT adoption on production within SMEs in Borolong area of Botswana and this is the main aim of this paper. It is

envisaged that ICT adoption within SMEs in Botswana could contribute to more competitive SMEs that may potentially create jobs, alleviate poverty and improve Botswana's competitiveness globally.

In a work-shop held at the Barolong Vocational Training Centre by the Minister of Telecommunications. He commented that there has been a slow rate of ICT adoption by SME owners on production in the Borolong area of Botswana, and this was a worrying factor in his ministry. He encouraged them to use ICT tools in their enterprises as this will greatly help in increasing their production levels (Dimalang, 2015:2).

It is because of these comments that necessitated me to investigate the effects of ICT adoption by SME owners on production in Borolong area of Botswana. And this is connected to the main research objectives which the study would like to achieve. And those are to find out if SMEs have access to ICT tools, their drivers of ICT adoption, effects of ICT adoption on production, barriers towards SMEs' adoption of ICT tools and availability of funds and training programme for ICT adoption by SME owners.

### 1.3.2 Objectives of the research

The study investigates the effects of ICT adoption by SME owners on production in the Borolong area of Botswana. The following are the research objectives the study would like to achieve:

- To find out whether the SME's of Borolong areas have access to ICT tools.
- To establish the key drivers of ICT adoption by SMEs of the Borolong area.
- To find out the effects of ICT adoption by SME owners on production in Borolong area.
- To identify the barriers preventing SMEs' adoption of ICT tools in Borolong area.
- To establish the availability of funds and training programme for ICT adoption by SME's in Borolong area.

### 1.3.3 Significance of the study

It is hoped that the outcome of this research will

- Benefit the SME's of Borolong area because they will be equipped with knowledge about where to access, acquire ICT tools and also even the knowledge of how to use them.
- The SMEs of Borolong will have knowledge of the effects of ICT adoption by SMEs.
- Indicate the key drivers of ICT adoption by SMEs of Borolong area
- The SME owners will know the available funding and training programme that can assist them in ICT adoption process.
- The barriers facing SMEs' adoption of ICT tools will be known, hence appropriate measures will be taken by the government in solving them.
- The Ministry of Science and Technology will also benefit because from this research they will also be able to know the current state of ICT adoption in the Borolong area and take appropriate measures to address the situation.
- Universities will also benefit because students can use this research paper to do their research.

This research will advance our knowledge of the topic in the sense that; it is for the first time such a research (ICT adoption) has been done on SMEs of the Borolong area. Other SMEs in other areas and the whole country at large will now have knowledge about where to access ICT tools, key drivers of ICT adoption and they will also have knowledge about how to use ICT tools to be competitive. It will also reflect the effects of ICT adoption by SME owners and also barriers towards SME adoption. In summary, this paper will reveal the positive that comes along with using ICT in firms hence SMEs will be encouraged to adopt ICT in to their firms and ultimately the adoption rate will also increase. This paper will act as a catalyst in increasing the adoption rate because the SMEs will know have a clear knowledge on how ICT adoption can benefit them. This area has experienced a slow rate of ICT adoption and as such this gap will be filled when most of the SMEs start to adopt ICT in to their business.

### 1.3.4 Research questions

Main research questions:

- Do the SMEs of Borolong area have access to ICT tools?
- What are the key driving forces of ICT adoption by SMEs in the Borolong area?
- What are the effects of ICT adoption by SMEs on production in the Borolong area?

- What are the barriers facing SMEs' adoption of ICT tools in the Borolong area?
- Are funds and training programmes available to assist SMEs of the Borolong area in adopting ICT into their businesses?

### 1.3.7 Delimitations of the study

The research will only focus on SMEs in the Borolong area of Botswana excluding SMEs operating in other areas. Furthermore the research will exclude SMEs that already operate within a manufacturing capacity that is within the electronics industry, for example software development, hardware development etc. The research will also exclude micro enterprises and survivalist enterprises as defined in Section 1 of the National Small Business Act of 1996 as amended by the National Small Business Amendment Acts (NSB) of 2003 and 2004 (Mwobobia, 2012:90) and hence limit the study to SME, i.e. small medium enterprises.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1 Introduction

Globalisation and digitalization have drastically changed the way business is done and competes in the market place; information and communication technology (ICT) are the drivers of this change. According to Modimogale and Kroeze (2011:02), change has given rise to a new economy, which is known as the knowledge economy. Most countries are drifting away from an industrial economy to a knowledge economy because economic growth depends on a country's ability to make, gather and distribute knowledge. Knowledge is vital for economic growth and it is what we sell and what customers buy (Procter & Shemi, 2013:16).

Mutula and Van Brakel (2006:405) agree that ICT has speeded up the pace of globalization and increased the complexity of business practices because firms not only need to be familiar with their local context but also with global developments. Therefore, to compete in the knowledge economy, countries need a strong ICT literacy skills base that can innovate and adapt quickly to the rapidly-changing environments. More emphasis is placed on the knowledgeable worker than ever before, the knowledge economy relies heavily on ICT; it has led to the rapid growth of ICT sectors (Procter & Shemi, 2013:17).

Countries like Botswana, China, India and Korea have created conducive environments to enable SMEs to capture lucrative new business opportunities (Sampong & Akomea-Bonsu, 2012:154). Botswana has offered a reduction in import duties for IT hardware and created infrastructure in software technology parks (Procter & Shemi 2013:18). Botswana's thriving ICT sector has in turn propelled positively the country's economic development. According to Mutula and Van Brakel (2006:406) SMEs outside the ICT sector have also benefited by adopting ICT in their own operations, enabling them to communicate quickly, increase productivity, develop new business opportunities, and connect to global networks.

Mutula and Van Brakel (2006:402) also agree that ICT plays a pivotal role in giving SMEs a competitive edge but inadequate access to information is a problem and is due to lack of ICT infrastructure. Access to information helps SMEs to make better and

competitive business decisions. According to Apula and Ige (2011:210), SMEs can only survive in this competitive environment if they have adequate access to information.

Many governments are encouraging SMEs to adopt ICT into their businesses and Yusuf (2013:10) cautioned that ICT should be adopted with the intention that it will lead to growth of the firm. Governments must thoroughly assess whether SMEs really need ICT before implementing an adoption strategy and they must also help SMEs in choosing the best strategy for their firms and avoid a one-size fits all approach because SMEs have different ICT needs (Modimogale & Kroeze, 2011:04). SMEs have different ICT needs because of their annual turn-overs, number of employees, nature of business, ownership and geographical location (Mwobobia, 2012:90).

## 2.2 What is ICT?

Modimogale and Kroeze (2011:02) define ICT as the array of primarily digital technologies designed to collect, organize, store, process and communicate information within and external to an organization and, in our case, SMEs. According to Yusuf (2013:11) it can be referred to as technologies that pertain to the new science of collecting, storing, processing and transmitting information whereby information, computing and telecommunications are converging. ICT covers technologies like the simple telephone, point-of-sale systems, stand-alone PCs, networked environments, Internet and credit card facilities (Sampong & Akomea-Bonsu, 2012:153). According to Milne and Watkins-Mathys (2010:02), ICT is defined as technology that enhances the processing, gathering, distribution and use of information. They categorised ICT into the following technologies; information, telecommunications and networking technologies. This includes websites, computers, Internet, fixed-line telephones, broadband, wireless communications devices, mobile phones networks, and various specialized forms of equipment.

Ongori (2009:79) refers to ICT as technologies and tools that people use to share, distribute and gather information and also to communicate with one another or in groups, through the use of computers and interconnected networks. In addition, ICT are mediums, which utilize both telecommunications and computer technologies to transmit information. Apula and Ige (2011:208) refer to ICT as a wide range of computerized technologies. ICT is any technology that enables communication and the electronic

capturing, processing and transmission of information. Bayo-Moriones, Billón and Lera-López (2013:125) have stated that these technologies include products and services such as desktop computers, laptops, handheld devices, wired or wireless intranet, business productivity software such as text editor and spread sheet, enterprise software, data storage and security, network security and so on. In Nigeria, commonly used ICTs include Internet, Personal Digital Assistants (PDAs), Automated Teller Machines (ATMs), mobile phones and smart cards (Apula & Ige, 2011:208).

ICT refers to technologies that pertain to the new science of collecting, storing, processing and transmitting information whereby information, computing, and telecommunications are converging (Sebusang & Masupe, 2005:11). ICT is any technology used to support information-gathering, processing, distribution and use (Chandamoyo & Dumbu, 2012:124). More precisely ICTs can be viewed as all forms of technologies and products for a wide range of software, hardware, telecommunications and information management techniques, applications and devices used to create, produce, analyse, process, package, distribute, retrieve, store and transmit or receive information electronically in a digital form such as computers, email, internet, websites, social networking and other wireless communications devices, networks, broadband, and as well as the various specialized devices and applications associated with them, such as satellite systems and videoconferencing (Yusuf, 2013:011).

### 2.2.1 Current state of ICT growth in Botswana

The vice-president of Botswana has acknowledged that Botswana as a country has come far with ICT issues and it has transformed the country into knowledge economy. Through government programmes like the National ICT policy called Maitlamo, the government of Botswana has given Batswana a road-map towards effective use of ICT tools. There are also other initiatives like Nteletsa 2, international connectivity mobile network, national optic fibre and the backbone network. All these initiatives increase digital literacy and provide universal access to ICT (More, 2015:3).

Dimalang (2015:4) stated that Botswana also uses ICT to change from government approach to public service delivery (e-government), connecting buyers and sellers (e-commerce) and also the social interactions (social media). The government of

Botswana uses ICT to improve welfare of Botswana in areas like community development, agriculture, poverty eradication amongst others.

According to Iyanda and Ojo (2008:320), the Botswana government, through the Botswana National Development Plan (NDP 9) wants to promote economic growth, through human development, creation of employment, poverty eradication and others. This aim could be made possible by the effective adoption of ICT tools (Botswana Government, 2012:80).

Botswana through its programme has developed a national ICT policy (NICTP) which in keeping with vision 2016, envisions that Botswana will be globally competitive and this could be achieved by the use of ICT (Botswana Government, 2010:110). Its objectives are:

- Create an enabling environment for the growth of an ICT industry in the country.
- Provide universal service and access to ICT tools.
- To position Botswana as a regional ICT hub.

### 2.2.2 ICT adoption process by SMEs

Many researchers have agreed that the adoption of ICT by SMEs follow a sequence, starting from internet usage to full integration of business systems (Iyanda & Ojo, 2008:314). According to Iyanda and Ojo (2008:314) there are many factors that influence ICT adoption. These are exogenous and endogenous factors and these influence the implementation and management of ICT. External influences are customers, suppliers and competitors and internal influences are employees and management. Management's commitment and perceptions with regard to ICT will influence the SMEs to adopt ICT. For example, SMEs with managers who are innovative and knowledgeable about IT are more likely to adopt ICT in to the firm than those managers who are not innovative and knowledgeable about IT (Carbonara, 2005:215).

### 2.2.3 ICT adoption in Botswana

According to Iyanda and Ojo (2008:318) Botswana has experienced a rapid growth in ICT adoption since the beginning of the last decade. The number of main telephone

lines has increased significantly since 1995 to 2009. These telephone lines have increased three times during this period. Personal computers have also increased with the same magnitude in the same period including the number of internet users. The usage of mobile phones has exceeded expectations because almost every Motswana has a mobile phone. All this has happened despite the numerous barriers like security problems, lack of service providers and difficulties with adopting the ICT tools especially in rural areas (International Research Centre, 2007:44).

According to Sebusang and Masupe (2005:44) there are many challenges that the Batswana face with regard to adopting ICT tools. Some of the challenges are shortages of skilled workers, lack of proper infrastructure and lack of call centre management expertise. There is a need to continuously improve ICT infrastructure and educate people in IT skills to address these challenges (Botswana Government, 2010).

Iyanda and Ojo (2008:89) explained that the Botswana Telecommunication Corporation (BTC) is the National telecommunication operator which owns a fully-digital backbone infrastructure linking all major population centres. According to Sebusang and Masupe (2005:42), this backbone is one of the most extensive in Africa, linking fifty automatic exchanges and providing connections to some Southern African countries. This telecommunication infrastructure is used by both BTC (for its telephony and communications services) as well as by Botswana's mobile telephone operators and internet service providers, for voice traffic and data services respectively.

The government of Botswana has made several investment initiatives. The government has allocated P1.3 billion for technology programme (Botswana Government, 2010). Even though there are many considerable initiatives for ICT adoption, the rate of ICT adoption is still very low particularly in most parts of the country. Most SMEs are still to embrace ICT. However, some companies like mines and financial services providers have already benefited from the use of ICT.

A number of usage options have been made available to consumers (individuals and business). According to Iyanda and Ojo (2011:313), leased lines are used mostly by corporate entities for data transmission and internet access, while dial-up services are used by small business and home users. But the diffusion and up-take of new ICT in Botswana is critically dependent on grid electricity. Although potentially more than

seventy percent (70%) of Botswana's population is within accessible range of grid electricity, only twenty five percent (25%) of these households have electricity accounts (Botswana Government, 2013). Since most of ICTs (tools and processes) need power to work, the lack of diffusion of electricity is a hindrance to the diffusion of ICT.

### 2.2.4 Types of ICT facilities

Ongori (2009:80) has presented the scope of ICT facilities used by some companies. They are personal computers (mainframe and mini-computers), intranet and Internet, laptop computers and (Personal Digital Assistant) PDA.

Lera-López (2013:120) stated that the ICT technology facility include products and services such as desktop computers, laptops, handheld devices, wired or wireless intranet, business productivity software such as text editor and spread sheet, enterprise software, data storage and security, network security and so on. According to Apula and Ige (2011:208), in Nigeria, commonly used ICTs include Internet, Personal Digital Assistants (PDAs), Automated Teller Machines (ATMs), mobile phones and smart cards.

According to Mutula and Van Brakel (2006:409) the ICTs most commonly used by SMEs in Botswana included Microsoft Office applications, computers, internet, e-mail communications, telephones, photocopiers, radios, printers and websites.

### 2.2.5 Categorisation of ICT for SMEs

The different needs of the business have led to the categorization of the use of ICT. According to Modimogale and Kroeze (2011), the following are categorise of ICT for SMEs; market-oriented groups, production-integration and general-user. The categoration is done based on the roles of ICT or the strategic role ICT can play in an SME. The SME's manager must know the positives that ICT can bring to the firm and then place it accordingly in one of the groups:

- General-user ICT group – it's the simple basic ICT implementation and it normally includes e-mail and the internet. Rates of ICT adoption are high and it is independent of the size of the business. Technology is not coordinated and it is introduced slowly. Stand-alone ICT like PC's that does not require communication

technology are used. This standalone application can do record keeping, financial planning and marketing materials (Kushwaha, 2011:235).

According to Mwobobia (2012:91), the use of stand-alone ICT, or in this case general ICT, is not prolific. But the use of stand-alone ICT can be viewed as an entry point into the new economy, this means that, it does not necessarily give competitive advantage but it gives access to being competitive.

- Production-integrating ICT group - They are more advanced than general-user ICT's as these ICTs are either linked to the production process carried out within the firm or based on inter-firm relationships. They cost more and require appropriate technological skills to carry them out. According to Nguyen (2009:170) they form part of the strategic plans of a firm for achieving its objectives and changing or enhancing business operations. Ritchie and Brindley (2005:210) indicated the following examples: electronic funds transfer (EFT), Local Area Network (LAN), wide area network (WAN) and this are connections within the firms area. According to Bayo-Moriones, Billón and Lera-López (2013:120), the benefit of this product innovation (PI) is faster service delivery. In overall, applications here rely on networked technologies and Mwobobia (2012:22) stated that this has transformed the capacity of SMEs to share and transfer information.
- Market-oriented ICT group - It is used to market or communicate with the outside world. These represent the firm's web presence, displaying the goods and the company information on the World Wide Web. Some websites might have e-commerce functionality, such as offering the ability to place orders. This relates to the marketing aspect of the business. The World Wide Web can be used to reach far-away markets. It can give the business a 24 hour trading, borderless market space and it also gives the benefit to SMEs to compete with big firms on equal grounding (Kushwaha, 2011:2360).

The above categorization expresses the general purpose of its use. The SME should be put within the most appropriate group so that manager can easily change the SME's business process. In order for ICT to be used as a competitive tool against others it needs to make a hybrid of all the categories mentioned above.

### 2.2.6 Adoption perspective of ICT

Modimogale and Kroeze (2011:03) agree that each individual SME is different and should be treated as such. This reinforces the small firm and ICT from the small firm perspective which advocates the uniqueness of each SME and the purpose of adopting or implementing ICT (Ritchie & Brindley, 2005:209). One common agreement which these authors have is that SMEs are owner-managed, this means that the owner solely influences the business decisions and direction. Authors on the topic of adoption of ICT hold three viewpoints, which are technology perspective; management and organization of technology perspective and the small firm and ICT perspective

- Technology perspective - This perspective examines ICT adoption from a technology point of view. It mainly focuses on technology aspects like the Internet or e-mail technology, but without concentrating on how the business can use this technology to be successful. The focus is thus only on the success of the technology driving the business; no consideration of the SME is made. Success is measured from a technology point of view and is not appraised on the success of the business (Ritchie & Brindley, 2005:210).

This perspective holds dangers for both SMEs and large businesses. There have been several reports of failures of ERP and CRM projects within organisations, one of the biggest problems is the readiness of the organisation to embrace the technology. There are a number of things that the organisation needs to do when implementing technology, for instance, the organisational culture should be technology-oriented; business processes need to be flexible in order to allow technology usage; one need to check the availability of IT skills needed for implementing the technology, and so on. For the adoption process to be successful, all these factors must be considered (Modimogale, 2008).

- Management and organization of technology perspective - here more emphasis is placed on organizational aspects. It looks more into SMEs strategic plans and capabilities of structures of the SMEs (Modimogale & Kroeze, 2011:03).
- Small firms and ICT from the small firm perspective. This part looks at how SMEs can use IT to be competitive and it looks at the SMEs' vision. Ritchie and Brindley

(2005:210) and Modimogale and Kroeze (2011) concur that most of the future research should focus on small firms and ICT from the small firm perspective.

This article's approach is based on the last perspective, with a particular focus on the owner-managers and how they factor technology into the strategy of the business in order to help the business to improve and have competitive edge. It is also imperative to understand the characteristics and differentiating factors of SMEs.

The owner-manager is an important part of the SME as he/she makes all or most of the decisions regarding the business (Galloway & Mochrie, 2005:35). This view is important for the topic of this article particularly discussing effects of ICT on production of SME, because it requires strategic influence for the management or owners. According to Modimogale and Kroeze (2011), the owner-managers have the following limitations:

- Capability gaps or knowledge gaps which prevent effective technology use and selection.
- Their intuitive and organic styles of management have important consequences for the way in which they evaluate and use technology.
- The owner-managers' personal skills and mind-sets influence their organization's culture. This means that if the owner-manager is technology averse it will be difficult to adopt ICT and use it as a tool.

## 2.3 What are SMEs?

Mutula and Van Brakel (2007:235) explained that there is no one way of defining SME, but generally, authors use the number of the employees as an attempt to define it. They defined SMEs as businesses with about 150 or fewer employees and are not owned by the government.

In the Botswana context, Moaisi (2005:58) defined SMEs as informal or micro-enterprises sector made up of entities employing up to three people. By contrast, the small enterprises have a somewhat broader scope and operate on a more structured basis. Furthermore, SMEs are sub-divided into two distinct employment ranges. The small ventures into the one to three employment size ranges will be defined as micro-enterprises while in the four to ten are small enterprises.

According to Mwobobia (2012:90), defined SMEs as firms with six to 25 employees and it mostly has an annual turnover ranging from P60, 000 and P1, 500,000. He stated that they are owned by individuals and employees between one and twenty people. Montsho and Moreki (2012:1167) explained that the SMEs are normally operated by people with low education levels.

According to Nkwe (2012:36) in Botswana a Task Force was formed in 1998 to come up with government accepted definition, and the Task Force proposed three categories of enterprises, using annual turnover and the number of employees.

Table 2.1 Botswana SMEs Thresholds

| ITEM | SIZE CATEGORY (enterprise) | EMPLOYMENT LEVELS | ANNUAL TURN-OVER IN PULA |
|---|---|---|---|
| a. | Micro | < 6 workers | < P50 000.00 |
| b. | Small | < 25 workers | Ranges from P50 000 to P100 000 |
| c. | Medium | < 50 workers | Ranges from P100 000 and P150 000 |

Source: Local Authority Enterprise (LEA). Annual report 2012

### 2.3.1 Types of SMEs operating in Botswana

According to Malibala (2012:4), in Botswana a business can be operated in these three legal forms:

- Single owner enterprise
- Partnership
- Private company

- The single-owner enterprise – it is controlled and owned by a single person. The person who runs a business on his or her own account is known as the single owner or sole proprietor of the business. The sole owner of the business has great flexibility to run the business as he/she wishes; however, a single owner runs a risk because he/she is personally liable for all the debts and liabilities of the business. It is the simplest form of a business structure and operation; it has fewer formalities and a few legal restrictions (Malibala, 2012:4).

- The partnership - this exists when two or more people agree to carry on a business together in order to make profit for their joint benefit. Each partner must contribute money, work or property as resources of the business. It normally employs between 2-20 people (Modimogale & Kroeze, 2011:05).
- The private company – here partners contribute money for the business and those who contributed are called shareholders in the company. Most companies in Botswana are private companies limited by shares (Modimogale & Kroeze, 2011:05).

SMEs in Botswana are categorized into manufacturing /production 17.4%, trade 40.1% and services 42.5%. They normally employ up to six people including the owner. In most instances they operate from their premises, they are not registered and they have an annual turnover of around P60, 000. There are about 50,000 micro-enterprises in Botswana and most of them are owned by females (Mwobobia, 2012:95).

In an attempt to understand SMEs, it is vital to take a closer look at the relationship between SMEs and the usage of ICT and how this impacts on the adoption process. According to Montsho and Moreki (2012:1197), the following are the user groups;

- Low-level users – in most instances they do not use ICT in their business because they don't even know its effects on the business and cannot even invest their money in it.
- Medium-level users – this group will just have started using ICT, and stand-alone PCs are normally the first ICT tools used. Few networks are normally established.
- High-level users – this group exhibits signs of more sophisticated understanding of ICT and how the technology can be applied.

### 2.3.4 Distribution of SMEs industrial projects

According to the Department of Industrial Annual Report (2014), the following are SME projects in the Borolong Area of Botswana.

Table 2.2 SMEs projects in the Borolong area

| PROJECT | NUMBER OF PROJECTS |
|---|---|
| 1. Bakery | 5 |
| 2. Brick-moulding | 8 |
| 3. Carpentry | 8 |
| 4. Ice-cream | 3 |
| 5. Milling | 5 |
| 6. Metal-work | 3 |
| 7. Printing | 5 |
| 8. Sewing / knitting | 4 |
| 9. Agricultural projects | 11 |
| 10. Food production | 19 |
| 11. Car wash | 4 |
| TOTAL | 75 |

Source: Department of Industrial Affairs. Annual report (2014)

2.3.5 The role of Government on SMEs.

Moaisi (2005:67) divided the role of government in SME support into three categories;

- The regulatory role in areas such as licensing, quality control standards, consumer protection, employment rights and the enactment of the associated legal framework.
- Promotion of SMEs through direct financial support, assistance with new business formation and access to financing and preferential treatment designed to encourage local entrepreneurship in selected economic sectors.
- Facilitate the coordination and promotion of a SMEs business support infrastructure, including non-governmental organization (NGOs), local authorities and private sectors.

### 2.3.6 Contribution of the SME sector to Botswana's development

Characteristics of a flourishing and growing economy are a booming small and medium enterprises (SMEs) sector. Nkwe (2012:30) stated that SMEs are vital in achieving industrial and economic development objectives. SMEs contribute to poverty alleviation, employment creation and generation of potential entrepreneurs. It offers linkage development to large industries. They also support the rural economy in providing income generating activities. According to Nkwe (2012:35), the following are some of the contributing factors of SMEs;

- Creation of employment – One of the most important contributions of small businesses to national economy is creation of employment. Small businesses are job creators and are what really drive the economy of most countries. Small and medium-sized enterprises are contributing to employment growth at a higher rate than larger firms.
- Economic contribution - Internationally, it's agreed that small enterprises contribute immensely to economic development. In Botswana, the government and donor agencies are increasingly emphasizing the key role played by the SME sector in promoting economic and social development. They are jointly providing financial assistance in an attempt to encourage and assist SMEs in the country. The government has realized that it is not sensible to depend only on the diamond-mining industry for the long-term economic development of the country. It is now encouraging the development of the SME sector as a way to diversify its economy (Kongolo, 2010:2290).
- Poverty alleviation - The development of SMEs is seen as the right way to accelerating the achievement of wider socio-economic goals, including poverty alleviation. Economics plays a vital role in the development process of any country. An increase in the living standards of the people is the main concern of any development process. If it was not because of existence of SMEs, most of Batswana would be living below poverty line (Nkwe, 2012:31).
- Economic transition - SMEs make a significant contribution in the transition of agriculture-led economies to industrial ones furnishing plain opportunities for processing activities which can generate sustainable source of revenue and enhance the development process (Nkwe, 2012:31). .

- Income distribution – SMEs contribute not only to income generation but also income distribution. Large firms normally tend to produce an elite number of high wage income earners whereas SMEs produce a significantly large number of relatively low income earners. Most of the SMEs are distributed all over the country and as such they are able to distribute income evenly throughout the whole country. The majority of Batswana (over 65 %) are living in rural areas, the promotion of the development of SMEs should continue to be a policy priority to reduce the gap between urban and rural development and to monitor social inequities and rural migration (Pansiri & Temtime , 2008:259).
- Family income stability - From the socio-economic development viewpoint, SMEs provide a variety of benefits. SMEs have advantages over large-scale businesses because they can adapt easily to market conditions and they can withstand adverse economic conditions given their flexible nature. They are more labour-intensive compared to larger firms and they have lower capital costs associated with job creation. They play important roles to ensure income stability, employment and economic stability (Nkwe, 2012:31).
- Inter-linkage between enterprises - They help to absorb productive resources at all levels of the economy and add to the formation of flexible economic systems in which small and large firms are interlinked. According to Pansiri and Temtime (2008:260), such linkages are very crucial for the attraction of foreign investment. Investing transnational corporations look for sound domestic suppliers for their supply chains.

## 2.4 Challenges faced by SMEs in Botswana

Botswana generally compares well with developing countries, particularly in terms of the existence of conditions that are conducive for SMEs to thrive, even though it is clearly surpassed in some indicators by South Africa and Namibia, fellow members of SACU and close competitors. Comparison with developed economies depicts Botswana as fairly far from creating an enabling environment for SMEs to grow and develop. Botswana SMEs are faced by a number of challenges and according to Nkwe (2012:32);

- Marketing skills problems - Marketing of an SME determines how long the enterprise will stay operating in the business. The assumption is that if customers are not

aware of your products or services, they will not buy your products or even do business with you. According to Kalusopa (2005:415), lack of marketing skills of owners creates marketing problems in the small business sector and SMEs owners in Botswana do not have the necessary marketing skills; as a result they do not utilize the new marketing strategies such as social networks and others.

- Financial problems - The government of Botswana has made great efforts to increase accessibility to finances even though the targeted programme have had limited success because the awareness and usage of existing promotional programme is very low. In addition to insufficient access, high interest rates also pose a threat to micro enterprise growth. Sampong and Akomea-Bonsu (2012:155) stated that there are core difficulties seen in terms of discrimination by financial institutions against microenterprises with little collateral, difficulties in accessing information and a lack of market exposure. The inadequacy of external finance at the critical growth and transformation stages of micro-enterprises deters the enterprises with growth potential from expanding (Kongolo, 2010:2289).
- Competition - Competition as a challenge is expected as most SMEs, especially small sellers and producers tend to crowd in dense markets and overcrowded towns. It also reflects lack of market information and innovation as most new businesses are a replication of the already existing ones. An example is the Gaborone streets which are lined by many SMEs selling the same products and this has a negative impact on the growth of their businesses (Nkwe, 2012:33).
- Lack of management and training skills – most of the SMEs fail due to a lack of appropriate business management and training skills (Ongori, 2009:80). Training of small-business owners as well as their subordinates will allow them to acquire the necessary skills to ensure the survival and success of their business.

According to Moaisi, (2005:89), the following are other problems faced by SMEs in Botswana;

- Costs - high costs of inputs (raw materials) and utilities (electricity and water) as well as transporting costs negatively affect SMEs in Botswana. SMEs are not able to deal with this challenging situation, because they are not able to source quality input, nor can they afford to buy input at all due to insufficient working capital.
- Lack of support by chain stores- most of the big stores buy products from South Africa and are not prepared to engage into any formal agreements of buying from

locals. The reasons that they put forward include those related to low quality of domestic products. SMEs cannot afford to cut costs or sell at the large competitor's price and this has really drove SMEs out of business.

- Lack of monitoring and mentoring - Moaisi (2005:90) explained that the government in the past concentrated on providing funds to aspiring entrepreneurs, but the culture of entrepreneurship was not enhanced. One of the shortcomings was a lack of mentoring and monitoring to guide those who are able to acquire funds.

## 2.5 Drivers of ICT adoption by SMEs in Botswana

Apulu and Latham (2011:53) indicated the following as the drivers towards ICT adoption; competitive edge, increase profit, global reach, efficiency, current trends / technology, communication, automation/computerisation, information storage, reduce cost / saves time, online presence, and advertisement. According to Chandamoyo and Dumbu (2012:125), the following are drivers of ICT adoption by SMEs in Botswana;

- Globalization – nowadays business is done everywhere and different companies across borders need to communicate and as such they adopted ICT to make communications possible. Companies can communicate with customers and sell goods everywhere in the world. This is made possible by the intranet, internet, world wide web networks and the local area network (Modimogale & Kroeze (2011:33).
- Government drivers - most governments encourage the use of ICT by SMEs because this will greatly solve problems like unemployment and poverty. The government is doing this through its programme and training opportunities. They do this so that SMEs can also contribute to economic growth of the country.
- Innovation - most customers want to buy innovative products and services and most SMEs have realized that for them to be able to capture a large market and compete against big companies, they have to use ICT in their business to create innovative products.
- Flexibility - most of the companies are able to operate 24 hours, seven days a week and operate in a borderless environment. They are also able to access suppliers and resources everywhere, anytime and all this are made possible by the flexibility brought about by the use of ICT.

- Competitive edge - for SMEs to compete successfully against big companies they need to use ICT in their operations. ICT can enable SMEs to gain competitive advantage over other companies.

## 2.6 How could SMEs use ICT to be competitive?

According to Schubert and Leimstol (2007:45) for SMEs to be competitive depends on the ways that they use ICT to enhance business operations. Modimogale and Kroeze (2011:60) stated that having ICT implemented in a business does not necessarily give the business any competitive value, but having it linked to the business processes and strategy will most likely give a competitive advantage.

Generally, it appears that SMEs who use ICT according to the critical success factors below have a better chance of becoming commercially successful, according to Galloway and Mochrie (2005:39). The critical success factors are as follows:

- Focus on profit rather than sales
- Owner motivation, experience and managerial skills
- Expertise in managing growth
- Innovation, competitive advantage and flexibility
- Close contact with customers
- Access to resources (money, technology and people)
- Having large market niche

Modimogale (2008:20) stated that for SMEs to achieve the above factors they need to do the following;

- Aligned ICT strategy with the business strategy, which means that the ICT strategy should support and achieve business goals.
- The SMEs should set a clear ICT strategy which will give direction on the adoption process.
- Employees should have the appropriate skills that so that they can be able to use ICT successfully in SMEs to gain competitive advantage.

## 2.7 Availability of funds and training programmes for ICT adoption by SMEs owners

According to Ongori (2009:80), lack of access to finance is one of the most significant barriers for the start-up and growth of small businesses. Start-up business support services aim to assist entrepreneurs to develop their ventures and to cope with inevitable challenges of the business and the environment and the government of Botswana feels it should step in to empower the entrepreneurs. Nkwe (2012:31) agrees that financing formally registered SMEs operators is necessary to set up and expand their operations, develop new products and invest in new staff or production facilities. Infrastructure is provided by the government to SMEs. The government offers subsidies and a discount for the purchase of ICT infrastructure by SMEs hence reduces their purchase cost (Moaisi, 2005:45), stated that the government of Botswana has put the following schemes in place to assist SMEs.

- Support for SMEs by the government of Botswana in the 20th Century came in different forms but predominantly finance. The Citizen Entrepreneurship Development Agency (CEDA) formed in June 2002 is one of the financial support institutions. CEDA disburses subsidized funding to the SMME sector. It lends from P500 to P 150 000 at 5% interest per annum, payable over a period of five years, for a small scale category of enterprises. Then figures from P 150 0001 to P2 million at 7.5 % interest per annum, payable over seven years, for medium-scale enterprises (BIDPA 2009). The government has so much hope based on this organ. The Out of Youth Fund has been implemented as 50% grant and 50% loan, to a maximum of P100 000.The fund was established to help the youth engaged in business (Nkwe, 2012:32).

- According to BIDPA Annual Report, (2009), the Department of Industrial Affairs does not provide financial support. However, when potential entrepreneurs are identified they are provided with the necessary training and then referred to the Department of Culture and Youth (if they are youth), the Department of Women's Affairs (if they are women), and (the rest) to CEDA for financial support. Youth referred to the Department of Culture and Youth constitute a substantial number of referrals. Most of the youth are trained and referred to the Department of Culture and Youth are normally successful in getting financial assistance. Those referred to CEDA are not as successful because of the conditions attached to their loans.

- Enterprise Botswana (EB) - its main focus is entrepreneurial development, which started operating in 1997. EB plays a role in SMEs training to equip business people with skills to access both local and external markets (BIDPA 2009:90).
- The Department of Vocational Education and Training - it was not created to assist SMEs but has taken an internal initiative to promote their economic development. DVET runs a special programme called Start Your Own Business, which mainly targets youth and retirees from the public service. The duration of the course is twelve weeks and it is operated from the Auto Trades Training Centre (ATTC) in Gaborone. The course is geared at developing technical and entrepreneurial skills (Moaisi 2005:78).
- The Botswana Bureau of Standards (BOBS) - assists with subsidized training and certification and promotional measures. In terms of manpower, two officers have been assigned to SME-specific projects. The project's main focus is training and facilitating linkages with consultants and financiers. It holds workshops, seminars and presentations on specific standards, testing and measures, and training sessions on quality management issues (Moaisi, 2005:78).
- The Botswana Development Corporation (BDC). It promotes and undertakes investment projects for economic development. It provides loans of not less than P500,000 for medium- to large-scale businesses. It gives a grace period of one to two years based on the implementation plan and plays an advisory role to its business clientele. It does not directly provide training or other support to SMEs, but it has representatives on the Boards and Committees of several institutions that support SME development. Thus BDC is able to influence decisions that affect the training of its entrepreneurs (Moaisi, 2005:80).

- National Development Bank- According to Nkwe (2012:36), the National Development Bank (NDB) is a development financial institution that provides a wide range of financial services in agriculture, commerce, manufacturing and real estate. NDB provides SMEs with the following services: project evaluation (for new project proposals and the restructuring of existing ones), project monitoring, advocacy and also plays a major role in the execution of government empowerment schemes (Agricultural Credit Guarantee Scheme, CEDA Credit Guarantee Scheme, and Citizen Contractors Fund - which was wound up in December, 2006).

- The Botswana Confederation of Commerce, Industry and Manpower (BOCCIM) - its role in the development of SMEs is that of providing advocacy and training. The members include big and small companies, and close to 80% of the firms are SMEs. In terms of financing, BOCCIM has a specific budget for strengthening the business councils in support of SME activities. There is also a training programme specifically tailored for SMEs. In order to achieve its mandate, BOCCIM collaborates with the Ministry of Trade and Industry (MTI), commercial banks, Brigades and parastatal organisations (Moaisi, 2005:83).
- The Small Business Promotion Agency (SBPA) - The Small Business Promotion Agency and the Small Business Council provide support for SMEs by creating a conducive business environment through ensuring that policy and legal frameworks are in place to increase the competitiveness and sustenance of SMEs. Its mandates include: advice to government on policies related to SMEs, review of policies on SME development through research and monitoring the impact of policies on SME development. To achieve this, institutions monitor the activities of SMEs, and collaborate and coordinate their own policies applied to them. They also, disseminate information on SME activities to stakeholders in every district, city councils, and to the business community, in order to identify the peculiar problems experienced by SMEs at grass-roots level (Nkwe, 2012:38),.

- The Local Enterprise Authority (LEA) – the LEA offers highly specialized development and support services which include but are not limited to the following: Facilitation of business planning, providing training, mentoring and advisory services, identifying business opportunities for existing and future SMMEs, promoting domestic and international linkages, facilitating access to markets, facilitating exploitation of government and large firms' procurement opportunities by SMMEs, facilitating access to finance, facilitating technology adoption and diffusion, promoting general entrepreneurship and SMME awareness (Mwobobia, 2012:88).

  The LEA does not provide finance to entrepreneurs but facilitates access to finance as well as provides support services to SMMEs, before and after funding. Efforts continue to be made by the Authority to engage various stakeholders in the Financial Services industry, including commercial banks, to work together in the development and support of the SMME sector in the country (LEA Annual Report, 2012).

- Youth Grant Fund - According to Mwobobia (2012:90), noted that this fund was made to empower the youth to open their own business hence create employment opportunities.
- E-innovation Youth Empowerment Programme (e-YEP) - this programme focuses on innovation and creativity. This is done so that the enterprises of the youth can be sustainable and the assistance provided is in the form of a grant (E-innovation Youth Empowerment, 2009).
- Young farmers' CEDA fund. After realizing that most of its clients are old people, CEDA introduced this programme to assist young farmers through funding. This fund is available to all Batswana aged between 18-–40 years. CEDA also included all the inexperienced farmers irrespective of age under this programme (Mogwebi, 2012:33).

## 2.8 Barriers towards SMES' adoption of ICT as a competitive tool

There are numerous stumbling blocks or barriers that make it difficult for SMEs to adopt ICT. Galloway and Mochrie (2005:35) argue that most people assume that ICT will successfully bring about benefits, but it's not always the case. The issues affecting successful implementation or usage of ICT are both socio-economic and technological. Ongori (2009:80) stated that many people in rural areas live below subsistence levels and remain impoverished because of lack of access to basic infrastructure essential for economic growth and development.

According to Ongori (2009:81) the following are categories of barriers that prevent SMEs from adopting ICT exist:

- Lack of knowledge about the strategic use of ICT - there is inadequate knowledge about the potential benefits of ICT and strategies to support SMEs in achieving their business goals. SMEs face the challenge of being owner-managed and the owner makes all or most of the decisions about the business direction. Unfortunately the owner-manager's limitations become limitations of the business Chandamoyo and Dumbu, 2012:126). According to Modimogale and Kroeze (2011:04), this barrier can be classified as a strategic level problem. ICT needs to be considered a key player for the SME in reaching its goals.

- Lack of necessary IT skills-base - the owner is the centre of the business, making all or most of the decisions in the small business, so the adoption of ICT by the small business depends on the owner's ICT skills, personality and attitude towards technology (Modimogale & Kroeze, 2011:04).
- Perceived high setup cost – most of the ICT tools are thought to be very expensive and most of the SMEs are reluctant to buy them. Most SMEs do not even attempt to make a budget for it. Chibelushi (2008:730) stated that the other problem with regard to the cost of ICT is that SMEs owners may invest in unnecessarily big solutions due to sale pitches, hype of specific products or market patterns without considering their real needs.
- Ever-changing ICT environment - The ICT environment where we live is constantly changing, so constant learning and updating of technologies are necessary. This constant-changing of technology makes it very difficult for SMEs to cope with the rate at which it changes because they do not have the relevant skills to do the updating of the systems.
- Geographical factors – through the use of ICT, SMEs are able to reach far-away areas and even remote areas are able to be reached. The connection of landlines in rural areas is still a big problem and this makes information diffusion very difficult and adoption of ICT tools into business would be very unlikely. One other problem is that most of the rural people are not educated (Abedi & Khodamoradi 2011:125). According to Galloway and Mochrie (2005:35) some SMEs occupy small and clearly defined niche markets, sometimes entirely local and they do not need the global connectivity through the internet. These niches of market are mostly penetrated by word of mouth since it guarantees quality, service and reliability and these are business where trust and stability underpin successful operations.

According to Kozma (2005:730) SMEs do not have enough finances and resources to use for ICT adoption compared to big companies. Characteristics of the firm and industry sector are contributory factors to the adoption and exploitation of ICTs by SMEs. Brynjolfsson and Hitt (2009:550) have categorized internal and external barriers that prevent adoption of ICT by SMEs in developing country. The internal barriers include owner manager characteristics, firm characteristics, cost and return on investment, and external barriers include: infrastructure, social, cultural, political, legal and regulatory.

Dias, Franco and Pereira (2012:24) stated that one of the barriers is that SMEs lack the necessary experience and resources to use ICT in their businesses. In the same connection Antlova (2009:150) mentioned that the following barriers: security problems, insufficient infrastructure, management styles, resistance to change, insufficient knowledge of the market hinders the use of ICT by SMEs. Abedi and Khodamoradi (2011:161) also stated that the poor collaboration among employees, between departments, as well as their clients and suppliers do not make it necessary to use ICT tools in their business.

## 2.9 Effects of ICT adoption by SME's owners on production

In the present knowledge-based economy, it is vital for SMEs to adopt processes that enable them to provide services that will bring about competitive edge. Apula and Ige (2011:209) explained that ICT has the power to improve SMEs performance. ICT is known as a major catalyst and enabler of organizational change (Hazbo, Arnela & Chun-Yan, 2008:162). According to Chibelushi (2008:730), without the utilization of ICT, it will be difficult for SMEs to compete as ICT has a significant impact on SMEs operations and is claimed to be crucial for the survival and growth of economies in general. Adding to that, ICT provides opportunities for business transformations and provide SMEs with the opportunity to conduct business anywhere. Ongori (2009:80) stated that ICT adoption by SMEs provides a means to access, process and distribute larger amounts of information to the concerned personnel within the organization. This aids management to make meaningful decisions to assist SMEs in strategic planning.

ICT can greatly reduce production and labour costs, improve quality of products, enhances innovativeness and services and increase firms' competitive advantage (Rastrick & Corner (2010:55). Contingency theory is used to develop the notion of making IT appropriate and the relationship between factors and indicators of organizational performance (Franco, Dias & Pereira, 2012:26).

According to Kushwaba (2011:2235) the ICT environment helps in fast and accurate decision-making by the SMEs due to increased mobility. The critical components before SMEs are speed of services, access to information, empowering employees in terms of skill and delivering highest valued services at competitive cost. Grandon and Pearson (2009:198) explained that SMEs need ICT-based solutions in terms of multi-tasking,

expanding customer base, raising productivity, controlling cost, working remotely, fast and accurate decision-making and facilitating collaboration. ICT usage by the SMEs raises productivity of the sector in particular and the economy in general (Kushwaba, 2011:2236).

According to Apulu and Latham (2011:52) the use of ICT enables strategic management, communication, collaboration, information access, decision making, data management and knowledge management in organizations. ICT can provide powerful strategic and tactical tools for SMEs and if properly applied and used, they could bring great advantages in promoting and strengthening their competitiveness. Maldeni and Jayasena (2009:30) state that ICT enables SMEs to decrease costs and increase capabilities and thus assist to shape inter-organizational coordination. The usage of ICT can also assist in lower coordination cost and increase outsourcing in organizations and it can also be used to exchange information and it provides a medium for learning (Apulu & Latham, 2011:52).

Effective use of ICTs by SMEs will enable them to capture global markets, sell to international customers, and compete favourably with large corporations. SMEs stand to benefit from ICTs in such areas as reduced transaction costs, information gathering and dissemination, inventory control, and quality control (Mutula & Brakel, 2006:404).

SMEs have the opportunity to achieve a competitive advantage from the advances in ICT through innovation, marketing, efficiency gains, better quality and customer responsiveness; for example, the use of ICT will lead to a better relationship between customers and the firm. ICT has a positive impact on the business because it enhances competitiveness, leads to growth of the firm and helps in reducing production costs (Apulu & Latham, 2011:52).

Yusuf (2013:35) claims that ICT enables customers to give immediate feedback that allow companies to react fast to customers' demands and recognize new market niches. This entails that SMEs that are able to exploit the benefits offered by ICT can handle different types of innovative processes in their businesses since ICT influences the performance of SMEs in multi-faceted ways. According to Alam and Noor (2009:120) ICT can bring about change in organizations and make them more competitive, innovative and assist to increase organizational growth. It can then be recommended

that SMEs need to adopt ICT in their business in order to remain competitive in the present competitive global economy.

## 2.10 Accessibility of ICT tools by SMEs

According to (BOTEC) Botswana Technology Centre (2005) most of the enterprises in urban areas have access to computers and this illustrates the skewed access to ICT technologies between urban and rural dwellers. The Botswana Technology Centre study revealed that 91.5% of the sample rural population had never used a computer, yet 70.3% of the same sample had a desire to learn about computers. In contrast, government workers have good access to computers. The Botswana Government owns one of the most extensive computer networks in the country, covering nearly 100 villages and towns, and connecting over 7,000 civil servants (Mutula & Brakel, 2006:407).

Radio is by far the most diffused of all ICTs in Botswana, with 68% of households owning a radio set. Moaisi (2005) stated that Botswana has two national public radio stations, and with two commercial radio stations broadcasting in Gaborone, radio retains its importance as a medium of information exchange. There is one national public television channel, available free of charge through the standard set-top terrestrial TV antenna. There is also national availability of the South African-based direct-to-home satellite TV bouquet (DSTV) available on a private subscription basis through a receiver dish. Procter and Shemi (2013:20) reported that there has also been a rapid growth of the mobile phone in Botswana since the last five years. Botswana has moved from no cellular phones in 1997 to a more than 1000% increase in five years (Sebusang & Masupe, 2006).

According to Brake and Mutula (2006:404), Botswana's SMEs struggle to gain access to important information needed for improved productivity, profitability, customer satisfaction and improved cycle time. By and large, SMEs are confronted with this information struggle because they either do not understand what relevant information is needed and /or they do not know how to obtain it effectively (Moaisi, 2005).

Nkwe (2012:36) stated that reasons why rural communities in Botswana have virtually no meaningful access to ICTs other than radio and, in some cases, TV and the mobile phone, can be summarized as: Lack of resources (financial) to sustainably use them,

lack of knowledge and skills to exploit the new ICTs, no (relevant) local language content, lack of interactivity of government websites, meaning users do not get any feedback when they have queries – even some theoretically downloadable files cannot be accessed, as there is a lack of electricity for a lot of the rural settlements, thus rendering most ICT tools unusable and the telecommunications network is not universally accessible countrywide. A number of interventions are necessary if Batswana in the rural areas are to gain meaningful access to new ICTs and to the information these technologies can carry.

## 2.11 Theories in technology adoption

- Unified Theory of Acceptance and Use of Technology (UTAUT) - it was developed as a unified model through reviewing other models. It explains a user's intentions to use ICT and the subsequent user behavior. The model considers four constructs as direct determinants of user acceptance and usage behavior, namely performance expectancy, effort expectancy, social influence, and facilitating conditions. There are four key moderating variables: gender, age, experience, and voluntariness of use. UTAUT provides a tool for managers to assess the likelihood of success of technology introductions and to understand the drivers of acceptance in order to design interventions, which include, e.g., training or marketing. UTAUT focuses on users who may be less willing to adopt and use new systems (Korpelainen & Kira, 2010:35).

- Model of the IT Implementation Process- The model is based on the organizational change, innovation, and technological diffusion literature. The purpose of the model is to offer a directing and organizing framework for ICT implementation research. The model comprises six stages, namely initiation, organizational adoption, adaptation, acceptance and adoption, routinization, and infusion. Thus, the model covers an implementation process from the scanning of organizational needs to a full and effective use of the technology in daily practice. The model also identifies five contextual factors which impact on processes and products in each implementation stage: the characteristics of the user community, the organization, the technology being adopted, the task, and the organizational environment (Korpelainen & Kira, 2010:36).

- Information Systems Success Model- it was reviewed prior research and introduced a comprehensive taxonomy of factors contributing to the success of information systems. The literature on IS success and categorized success measures into six major categories: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. These categories are interrelated and interdependent and provide a comprehensive view of IS success. The target of the model is to guide future research efforts (Korpelainen & Kira, 2010:38).

In conclusion, all these technology focused on the acceptance and adoption of technology.

## 2.12 Literature gap

The empirical literature have provided insights and have also identified various factors that influence ICT adoption for improved SMEs performance from various stand point and with varying literally perspectives and insightful empirical findings. This study aims to fill a gap by finding out the effects of ICT by SMEs on production in Borolong area of Botswana. This information is an important linkage that is found missing in the literature in this part of Botswana.

## 2.13 Conclusion

The study has shown that ICT plays a pivotal role in enhancing the growth and performance of firms around the world. When properly used, it will lead to the firm attaining a competitive edge above its competitors. As a result, for SMEs to compete against big companies, they will need to adopt ICT in to their business. The government of Botswana has realized the critical role that SMEs plays in improving the socio-economic activities of the country hence it has come with many programme and initiatives geared towards encouraging SMEs to adopt ICT into their businesses. ICT adoption is the lifeblood if Botswana is to achieve socio-economic growth through SMEs. The government also encourages SMEs to adopt ICT so that they can also compete and trade their products and services globally.

At the present moment, the adoption rate of ICT in Botswana is very slow and it’s a worrying factor for the government. Hence the government has come up with initiatives

in trying to speed up the adoption rate even though there are some barriers that need to be dealt with first.

## CHAPTER THREE: RESEARCH METHODOLOGY

### 3.1 Introduction

This chapter details the research methodology adopted in this study. Research methodology is the way in which data are gathered for research purposes. This section will explain how data were collected, measured and interpreted. This is done so that the objectives of the research can be achieved. This section is also important because it elaborates on the sampling design. On the sampling design, the researcher explains the targeted population and also the sampling method and give reasons why a certain sampling method was used.

Furthermore, the researcher identifies the data-collection method and gives reasons for choosing it. The researcher also names the method used for data analysis and give reasons why those methods were used. Reliability and validity of the results are also discussed. Limitations of the research and areas for further research are also indicated.

### 3.2 Research design

There are generally two types of research methods according; the quantitative and qualitative methods. The quantitative method entails systematic empirical studies which involve quantifying through the assistance of mathematics and statistics. Primary data is collected and transformed into numbers which are empirically tested to see if a relationship can be found in order to be able to draw conclusions from the results gained. The analysis of data will be done using statistical tools. The choice of the research methodology is influenced by the researcher's theoretical perspective and also his attitude towards the ways in which the data will be used. A quantitative approach will be used to draw conclusions from the surveyed data and reach the objectives of this research which is finding out the effects of ICT adoption by SMEs owners on production in Borolong area of Botswana.

#### 3.2.1 The survey area

The study was done on SMEs from different projects which operate in the Borolong area of Botswana. This area is situated on the southern part of Botswana. It comprises the following rural villages namely Pitsane, Goodhope, Metlojane, Ramatlabama and

Thareselele. The closest town to these villages is called Lobatse and it is about forty kilometres away. This town is shown on the map of Botswana on figure 3.1.

These are fairly small villages which comprises about four hundred residents in each village. All these villages have a radius of about twenty kilometres between them and the furthest is Ramatlabama which shares the border with South Africa. This village is also shown on the map of Botswana on figure 3.1.

Figure 3.1 Map of Botswana

Source: Bradd (2009:11)

The projects which this SMEs are involved in are spread across the following

categories; bakery, brick moulding, carpentry, ice cream, milling, metal work, printing, sewing or knitting, agricultural projects (small stock, poultry, vegetables etc.), food production and car washes. A large number of SMEs in the Borolong area are engaged in food-production projects. Each village has an average of five operating SMEs and those found in Pitsane are more comparable to other areas due to larger populations found in that village.

### 3.2.2 The study unit

The study covered SMEs which are based mainly in villages of the Borolong area of Botswana were the study units and these villages are Pitsane, Goodhope, Metlojane, Ramatlabama and Thareselele. The SMEs produce a wide variety of products and services. This includes food, bricks, wood work, clothes, hair dressing, and metal products to agricultural products. The SMEs provides employment opportunities in those rural villages and they are the ones which were sampled.

### 3.2.3 Survey population

It is the list of all population units where the sample was drawn (Zindiye, 2008:125). In the real life situation, it is very difficult to obtain all the complete list of all elements in the survey population. Due to this, only a sample was drawn from the population list and it was used. The total population for this study was obtained from the Department of Industrial Annual Report (2014), which reported that there are seventy five SMEs operating in the Borolong area of Botswana. These seventy-five SMEs are the ones that adhere to the definition of SME in Botswana context.

## 3.3 The sampling method

Naude (2007:46) defined sampling as a method used to select some units from a population and these selected units are going to be used to represent the whole population. According to Zindiye (2008:125), the primary purpose of sampling is that by selecting some elements of a population, the researcher can draw conclusions about the entire population. The sampling method can either be classified as probability or non-probability.

The next section examines the sampling method selected by the researcher for this particular study, and the motivation for selecting the sampling method. It also examines the sample size that was used for this study and also explains how the sample size was obtained.

### 3.3.1 Probability sampling

This study used a probability sampling method where each unit of the population stands an equal chance of being selected randomly. The researcher used this method so that

all the SMEs in the study area stood a chance of being selected and this means that all the SMEs were given a fair equal chance of being selected (Zindiye, 2008:126).

#### 3.3.1.1 Simple random sampling

The method that was used to select the 67 respondents from the population is called simple random sampling. Zindiye (2008:126) explained that using this method gives each population unit a fair equal chance of being selected. Each element / unit was represented by a number ranging from 1 to 67. These numbers were used to represent each element or SMEs when they were entered in to the computer. This method therefore eliminates bias.

### 3.3.2 Size of the sample

According to Research Advisors (2006), a researcher can use a confidence interval of 95% or 99%. The confidence interval percentage shows the degree by which a sampled population deviates from the total number of population under study. A confidence interval of a 99% sample number is closer to the exact total number of population and confidence interval of 95% being a little bit lower than the total number of population.

Within those confidence intervals, there is a margin of error which is allowed. The margin of error ranges from 1% to 5%. Any margin of error above 5% is not allowed hence the sampling would have to be repeated again. This is not allowed because the deviation would be less than the required lower limit of samples; as a result, the sampled population would be much smaller to give a true reflection of the characteristics of the whole population. The essence of having a 5% margin of error is to make allowance for those respondents who would have been selected and due to various reasons, they are unable to give their responses and as such they are covered by the margin of error.

This study initially used a confidence interval of 99% with an error margin of 1%, making a sampled population of 75. Some of the respondents were not able to answer the questionnaire due to various reasons. The number of sampled population who did not respond was eight in total. When subtracting the eight respondents from the total population of seventy-five, the researcher remained with only 67 samples giving an error margin of 5%. Therefore 67 samples were used in the research.

## 3.4 Organisation of the survey

This section explains reasons for having opted to use a questionnaire for gathering the data. A pilot testing or pre-test was also used and reasons for doing it will also be explained.

### 3.4.1 Design of quantitative research

It was done by gathering primary data from a large population with an idea of using the results to represent the whole population. Its main purpose is to quantify data by applying a form of statistical analysis. According to Cant, Gerbel-Nel and Kotzé (2005:144), the objective is to generalize about a particular population, based on the results of a representative sample of the population. The research findings are entered into the computer for statistical analysis and the results will be used to represent the whole population (Zindiye 2008:128). Statistical methods were used for analysis in this study.

### 3.4.2 A descriptive research format

These studies are done to give answers to what, who, where, when and how questions (Zindiye, 2008:126). In most instances researchers have an idea of the problem but still need concrete evidence to show causes of the problem (Tustin, Ligthelm, Martins & Van Wyk, 2005:4). Quantitative and structured methods were used. According to MBA Business Research Workshop handouts (2014:3), the following are characteristics of structured interviews;

- The interviewer asks each respondent the same series of questions.
- The questions are created prior to the interview, and often have a limited set of response categories.
- There is generally little room for variation in responses and there are few open-ended questions included in the interview guide.
- Questioning is standardized and the ordering and phrasing of the questions are kept consistent from interview to interview.
- The interviewer plays a neutral role and acts casually and friendly, but does not insert his or her opinion in the interview.
- Self–administered questions are a type of structured interview.

### 3.4.3 The questionnaire

A questionnaire was used as a research instrument. According to Longenecker, Moore and Petty (2006:28) a questionnaire is an arrangement of questions designed to collect data. The take-off points for designing an effective questionnaire for any research are based on the assumption that there is a researchable topic which clearly demarcates concept, subject and location, with measurable objectives and specific objectives that are straight forward. A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents, often designed for statistical analysis of the responses (McNabb, 2009:59).

According to Proctor (2008:44) a questionnaire was invented by Sir Francis Galton and is frequently used in quantitative research and social research. They are a valuable method of collecting a wide range of information from a large number of individuals, often referred to as respondents. Adequate questionnaire construction is critical to the success of a survey as inappropriate questions, incorrect ordering of questions, incorrect scaling, or bad questionnaire format can make the survey valueless, as it may not accurately reflect the views and points of the particulars. A useful method for checking a questionnaire and making sure it is accurately capturing the intended information is to pre-test among a smaller subset of target respondents (Cant *et al*., 2005:114).

There are two types of questions that can be used in a questionnaire. Those questions are discussed herein;

- Open-ended responses - in these types of questions, respondents answer in their own words and they are not given answers. It is normally used to collect primary data (Zindiye, 2008:130).
- Closed-ended questions - these types of questions give the respondents answers to choose from. This study is more closed-ended. All three types of closed-ended were used in this study and these are multiple choice questions, Likert scale questions and dichotomous questions (Saunders, Lewis, *et al*., 2011:112). These are discussed below;

Dichotomous responses: only two responses opposing each other are given and the answer is one of the two given responses. For example, responses could be *yes* or *no* (Cooper & Schindler, 2010:370).

Multiple-choice responses: it gives more than two alternatives of which respondents have to choose one alternative that they consider as the best answer (Cooper & Schindler, 2010:379). These types of responses are used when information can be classified into reasonably fixed categories, or when the respondent's thoughts are deliberately channelled into a certain direction (Tustin *et al*., 2005:398).

Scaled-responses: scaling permits the measurement of the intensity of respondents' answers to multiple-choice responses (Tustin *et al*., 2005:400). Examples are strongly *agree, agree, neutral, disagree* and *strongly disagree*. The researcher used both closed and open-ended questions for this study.

3.4.3.1 Design of the questionnaire

It was made very simple and straightforward so that respondents could easily understand it and answer it fully. The sequence of words and questions was arranged properly to encourage willing participation from the respondents. The main questions were mostly the main research questions of the study. The study used dichotomous, multiple-choice and five-point Likert scale type questions.

Dichotomous questions give two alternative responses to select from while a multiple-choice question gives more than two alternatives and the respondent has to select the alternative which they feel is the right answer whilst in a Likert scale, the respondents has to select the satisfaction or agreement or opposites (Zindiye, 2008:132). This study used all the types of questions and this made sure that complete information was given by respondents (Dewet, 2007:122).

Eighteen (18) out of the twenty (20) questions were closed-ended. Peel and Wilson (2006:55) stated that closed-ended questions give respondents fixed set of answers to choose from. Respondents can only choose from a set of given choices. According to Cant (2005:189) these kinds of questions are basically for the following reasons;

- They are less time-consuming to answer and they are also easy to understand. By using this kind of questions, non-response errors are greatly reduced because answers are already given and questions are easy to understand since respondents are provided with answers.
- They are also easy to code and analyse, because the responses are done before the interview.

Open-ended questions in the study were only two and they were used to find out if respondents can recommend other SMEs owners to adopt ICT into their business and they were asked to justify their answer to this question. The other question was to find out if there was still any other assistance that they felt the government of Botswana should still provide with regard to enhancing ICT adoption by SMEs.

Wheather and Cook (2012:113) explained that open-ended questions are those questions in the questionnaire which do not limit responses of respondents, but still they are provided with guidelines to direct their responses. Respondents answered the questions using their own words. The use of these questions was limited because they are time-consuming and non-response errors may be high. Coding and analysing of responses are difficult because answers are not pre-determined.

Structure of the questionnaire used

- Section A: Demographic details of respondents

It consists of four (4) questions, which investigate the demographic characteristics of respondent.

- Section B: Demographic details of SMEs

It consists of five (5) questions, determining the demographical details of SMEs in the study.

- Section C: Management and operational activities

It consists of four (4) questions on management and operational activities with regard to accessibility, drivers of ICT adoption, competence in IT and the barriers towards ICT adoption.

- Section D: Government support towards enhancing ICT adoption by SMEs.

This section consisted of two (2) questions on government support to SMEs with regard to ICT adoption.

- Section E: Effects of ICT adoption on SMEs production

It consists of two (2) questions investigating the effects of ICT adoption by SMEs on their production and the overall business of the firm.

- Section F: Recommendations by SME owners

It consists of three (3) questions on recommendations by SME owners.

3.4.3.2 Piloting / pre-testing

Pre-testing refers to the testing of the questionnaire on a small sample of respondents to identify and eliminate potential questions (Zindiye, 2008:135). It tests viability of all aspects of the questionnaire and it also includes the whole layout and sequencing of the words. Respondents who are going to be used for pre-testing should be the same as those that would be used in the actual survey (Motsoeneng, 2014:44). It is used for identifying problems that might occur during the actual survey before it is done, e,g difficult questions and improper language (Wheather & Cook, 2012:120). If these are encountered during the piloting stage, they should be corrected because if they are not corrected it might lead to loss of important information (Saunders, Lewis, *et al*., 2011:130).

The pre-test of the questionnaire was done on SMEs found in a village called Molapowabojang. This village is located closer to Lobatse, which is one of the towns found in Botswana. Pre-testing is vital because it was used for identifying problems in the questionnaire before the actual data gathering is done. For this process to succeed, the chosen respondents should treat this seriously so that gaps can be identified (Kumar, 2005:50).

Problems that were encountered during the pre-testing were rectified. The exercise showed that respondents would take less time to complete the questionnaire and the questions and language used are also very clear and understandable. The

arrangements of some of the questions were not in the right order hence some amendments were done to the questionnaire after pre-testing.

### 3.5 Validity and reliability of the questionnaire

Validity of the study refers to the degree to which the study accurately answers the question it was intended to answer (Bryman & Bell, 2011:122). Furthermore validity in this context also refers to the quality of the research process and the accuracy of the results (Saunders, Lewis, *et al*., 2011:130). According to McNabb (2009:78), a panel of experts can be used to examine whether the questionnaire meets the standards. In this study, the decision was made to rely on own judgment. The questionnaire was deemed valid because all the main research questions are asked on the questionnaire, including the major question which wants to find the effects of ICT adoption on the production of SMEs. The researcher did, however, ask for verification from the statistics department of the University and also the supervisor. Questionnaires from other past published dissertations and theses were also used for comparison reasons to check whether the structure and types of questions contained in the questionnaire were adequate to find answers to main research questions.

Furthermore the sample size was large enough to give more accurate results because the researcher used 67 samples out of 75 samples which gave only 90% sample coverage. With this percentage, results obtained gave a true generalized reflection of the whole total population compare to if we had used fewer samples.

Reliability on the other hand is concerned with the research study providing consistent results within similar contexts (Cant, 2005:195). Hence there is a relationship between reliability and validity in any study, i.e. the research study should be able to provide input/answers on what it is meant to answer and that the results of the study can be consistently applied, leading to the generalisation of the study (Cooper & Schindler, 2010:380). To enhance reliability in this study, the instrument was administered in a consistent and standardised manner. The interview transcripts were reviewed to make sure that no inconsistencies between single responses exist. This indicated that interviewees understood the questions correctly, understood and provided consistent responses which are indications of reliability (Bryman & Bell, 2011:129). The very same instrument was also applied to one participant on two different occasions and provided

similar results. This is referred to as test-retest reliability (Zindiye, 2008:138). This further enhances reliability. While reliability ensures that instruments obtain similar results consistently it is a requirement for validity (Bryman & Bell, 2011:130).

## 3.6 Data-gathering technique

This section focuses on the importance of using personal interviews as the data-collecting technique, and how the survey was done. This section further states the importance of using a covering letter.

### 3.6.1 Personal interviews

The study used personal interviews and according to Zindiye (2008:138), this is a two-way conversation between interviewer and a respondent. It is normally done to obtain information from the respondent (Bryman & Bell, 2011:129). The advantage of this method is that both players are in one area and it is easy to confirm that the correct respondent is the one answering (Cant, 2005:202).

Personal interviews were used in this study because using it resulted in good cooperation from respondents hence the quality of data gathered also increased. The researcher was also able to get information from all respondents irrespective of literacy because the interviewer was present there to explain all aspects of the questionnaire which was giving respondents tough time.

### 3.6.2 Letters accompanying the questionnaire

Two letters were used together with the questionnaire. One letter was taken from the Graduate School of Business of the North-West University which introduced the researcher to organisations and requested the organisations to allow the researcher to conduct the research in their organisation. The other letter was written by the researcher and it explained to the respondents the purpose of the study. The letters also assure the respondents that the information they will give will be kept confidential. Those letters are used basically to motivate respondents to corporate. The letters also explains why the respondents were chosen for the research and it will also explain how the study will benefit them. (Churchill, 2011:134) This letter is provided to the respondents at the start of the interview.

## 3.7 Data analysis

This involves reducing the gathered data into a manageable size by making summaries. The aim of this section is to look at behaviour of the analysed data and this is done through the application of statistical tools (Leedy & Ormrod, 2005:67). The research findings are interpreted in relation to the research questions. The results are compared with other theories to determine if there is any consistence (Yin, 2009:133).

### 3.7.1 Editing, coding and processing of data

#### 3.7.1.1 Data editing

Before the data are processed, it must be edited. According to Zindiye (2008:140), this involves checking the completed questionnaire to examine whether it was done correctly. Editing involves detecting errors and correcting the data and to make sure that minimum data quality standards have been attained (Naudé, 2007:46). In this study, the collected data were edited so as to simplify coding of the data.

#### 3.7.1.2 Data coding

This was done to easily classify questions in the questionnaire. According to Leedy and Ormrod (2005:70), this involves assigning numbers to answers so as to categorize them into limited classes. This helps the researcher by reducing the responses into few categories (Bryman & Bell, 2011:140). Efficient analysis of the data is accomplished by classifying data into limited categories.

#### 3.7.1.3 Data processing and statistical analysis of data

The processing of data was done with the assistance of statisticians in the Department of Statistics in the North-West University using the statistical package for social sciences SPSS (IBM SPSS Statistics 21) and Microsoft excel. The SPSS software is readily available in all computers in the school computer labs and it can still be installed into individual lab-tops. The data were captured into the data-view portion of the SPSS. The data analysis was done using statistical tests of descriptive statistics like frequencies and correlation tests. In correlation tests, cross-tabulation was done and graphs were also administered. This was done mainly to test the effect of one variable

on another, for example there was a test to find the effect of ICT on production of an SME.

### 3.8 Reliability of the results

A sample survey only gives probabilities even if correctly done. In a sample survey, a small portion of the population is selected and this selected population will be used to represent the characteristics of the entire population (Bryman & Bell, 2011:144). There are three types of errors that can have a negative impact on the reliability of the results if they are not done properly (Zindiye, 2008:142).

Sampling errors - Is the difference in outcome between the sampled population and the value that could be got if all the population were used (Zindiye, 2008:142). In this study, it was reduced by using a large sample size.

Response error – arises due to incorrect answering (Cant, 2005:148). This was avoided by initially doing a pre-test. The pre-test was used to test whether the questionnaire was right to be fully completed by respondents. Areas on the questionnaire where respondents encountered problems were explained by the researcher. Only SME managers who were willing to answer the questionnaire were used and all these activities reduced the response error.

Non-response error – it arises due to the failure of contacting all sampled respondents or failure of respondents to answer the questionnaire is an error caused by failure to contact all members of a sample and/or the failure of some contacted members of the sample to respond to all or a specific part of the questionnaire (Kumar, 2005:50). In this study, this error was reduced to absolute minimum by using personal interviews which involves a direct meeting between the researcher and the respondents through visits.

The sample that was interviewed was big enough to ensure representativeness of the whole population and the use of personal interviews improved the response rate as respondents were willing to co-operate with the researcher. The target to be sampled was a range between 1% to 5% margin of error of the whole population and the number that was interviewed was 67 which stand at 5% margin error. This number of 67 samples was within the allowable size range hence it was used.

3.8.1 Reliability analysis using the SPSS

- Scale: all the variables

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .832 | 29 |

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 67 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 67 | 100.0 |

Table 3.1 Reliability analysis of the data using SPSS

The collected data were put into the SPSS to find the reliability of the data. Reliability scales range from zero up to one and figures close to zero show that the reliability of the data is weak and those close to one shows a strong reliability of the data. Data of the study showed a reliability of 0.832 and this suggests that the collected data was very reliable.

3.9 Ethical considerations

To ensure an acceptable ethical standard for this research, certain steps were taken.

- The researcher sought respondents' consent before involving them in the research.
- The researcher revealed his identity, contact information, workplace and qualifications.
- Respondents were briefed about the research objectives and the role they would play in the study. They were also made aware of how they would benefit from the research.
- Respondents were assured that the information they gave out would be kept confidential.
- The respondents were told to be free to withdraw consent and to discontinue participation in the project at any time without prejudice to them. The researcher also made it clear that participation in the study was strictly voluntary. This was done to

create a reciprocal trustworthy relationship and ensured full consent on the part of the respondent.

- The researcher communicated the purpose of the study in full and also answered all questions that the respondents were asking regarding the research.
- The respondents remained anonymous and thus did not use their actual identity in the study;
- The final research report will be made available to all respondents.

## 3.10 Summary of methodology

This chapter explained the procedure that was used for sampling, data collection and analysis. Every step taken in this chapter was explained and reasons for doing that were explained. Statistical packages were used to analyse the data and in this study the statistical package used was SPSS. The chapter also touched on the validity and reliability of results. The reliability of the data was tested using the SPSS and it was found to be very strong.

# CHAPTER FOUR: RESEARCH RESULTS AND DISCUSSION

## 4.1 Introduction

Chapter four reveals the findings and its main focus is on the analysis and interpretation of the data gathered. Data analysis is when the gathered data are categorized into groups and the researcher examines and translates immediate results and in interpretation, the immediate results are translated into integrated and meaningful general references and findings. The most important thing is that the findings must provide answers to the research objectives and questions.

The data were analysed using SPSS and Microsoft Excel through the use of tables, pie and bar charts. The reason why they were used is because they are good at showing relationships. The questions in the questionnaire were numbered so that responses are grouped. This was done so that analysis of the responses could be done with easily. Coding and processing of data were done with the assistance of a statistician.

## 4.2 Results

Analysis and interpretation of the data obtained are dealt with in this section. Questions in the questionnaire were discussed separately. Motives for asking each question will be explained. Result findings are supported by tables, pie and bar charts. Results interpretation will be done and findings are compared with other theories from previous literature to see where there is consistency with other studies.

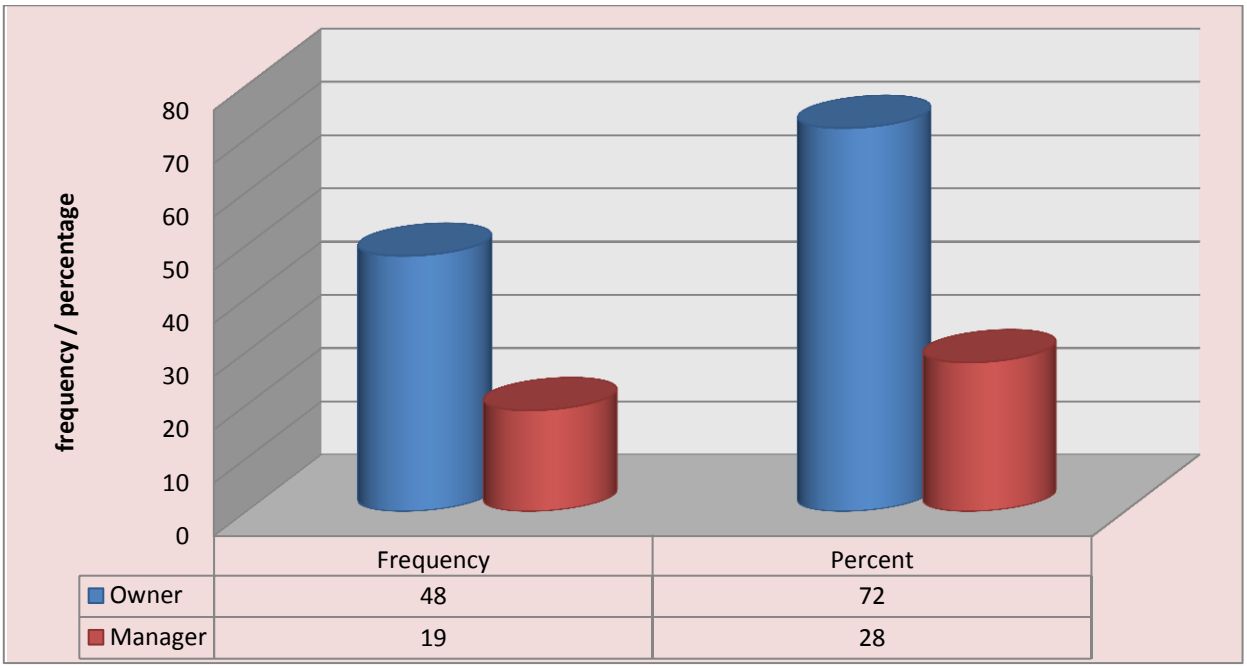
### 4.2.1 Section A: Demographic data of respondents

This section identified and discussed demographic factors related to respondents on behalf of SMEs in the Borolong area of Botswana. Aspects like status, gender, age and education level are discussed in this section. According to Zindiye (2008:147) this is necessary because it resembles characteristics of respondents.

4.2.1.1 Status of the respondents

The first questions wanted to know the status of the respondents. This is important because it indicates whether respondents are owner-managers or just managers of the business. Figure 4.1 shows the results obtained.

Figure 4.1 Status of the respondents

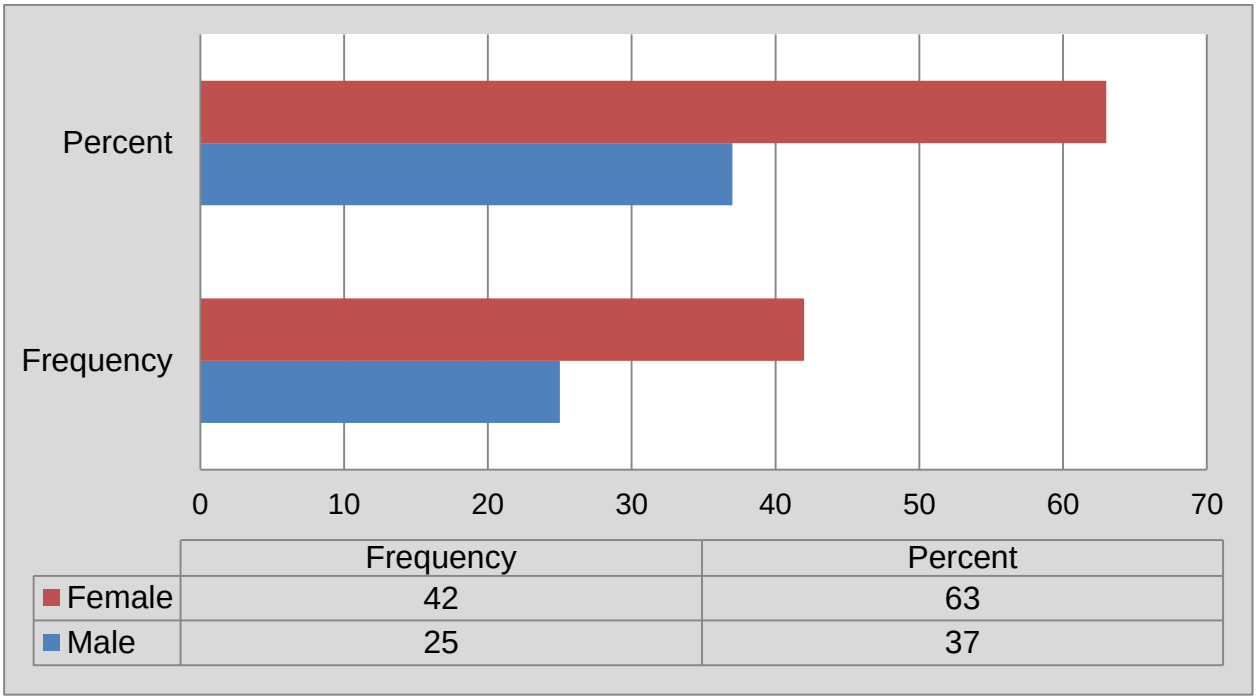



Comments: Seventy-two percent (72%) of the sampled population are owners of SMEs. This means that more SMEs in the Borolong area of Botswana are run by their owners. Only twenty-eight percent (28%) are run by managers. This result agrees with a study done by Zindiye (2008) on factors affecting SMEs of Harare, where results showed that seventy-one percent (71%) of the SME's are operated by their owners. It can be summarised that, most SMEs in the Borolong area of Botswana are managed by their owners.

4.2.1.2 Gender of the respondents

The figure 4.2 describes findings of the study with regard to gender of respondents.

Figure 4.2 Gender of respondents



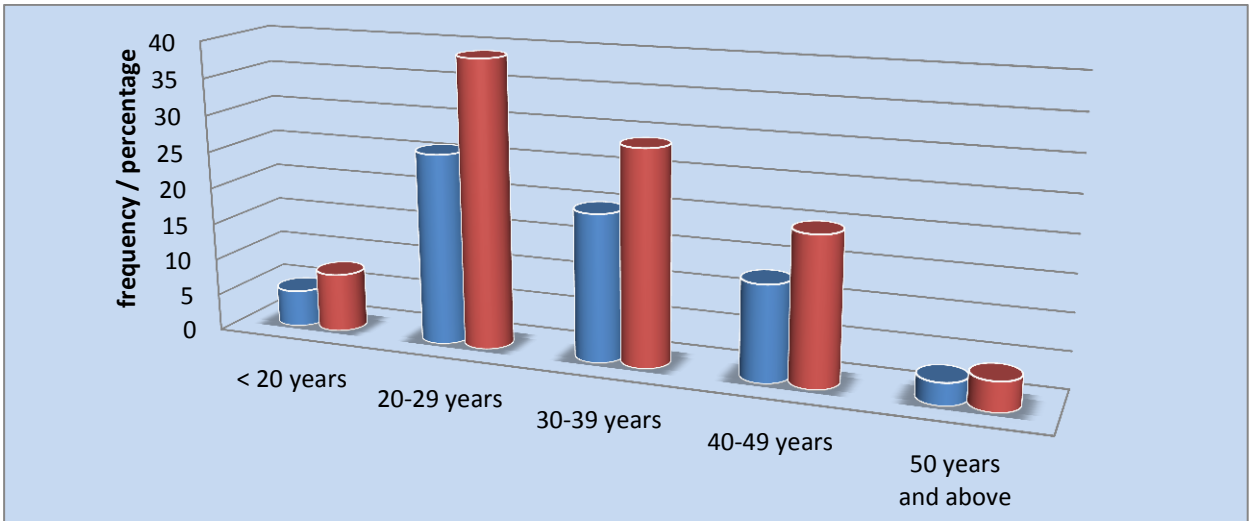

| | Frequency | Percent |
|---|---|---|
| Female | 42 | 63 |
| Male | 25 | 37 |

Comment: Sixty-three percent (63%) of the respondents are females compared to thirty-seven percent (37%) of respondents who are males. This finding indicates that women are more involved in entrepreneurial ventures than men. This could be attributed to the fact that the government of Botswana has formed some programmes which are geared towards encouraging women to start their own business and also helps them excel in their business - such programmes like “Emang Basadi” which translates to “women stand up”. This programme specifically helps women through funding and training. These results are in accordance with a study done by Zindiye (2008) on the factors affecting SMEs of Harare, where sixty-three percent (63%) of respondents were females.

4.2.1.3 Age group of the respondents

Information regarding the age group of respondents is shown in the figure 4.3.

Figure 4.3 Age group of respondents




| | < 20 years | 20-29 years | 30-39 years | 40-49 years | 50 years and above |
|---|---|---|---|---|---|
| Frequency | 5 | 26 | 20 | 13 | 3 |
| Percent | 8 | 39 | 29 | 20 | 4 |

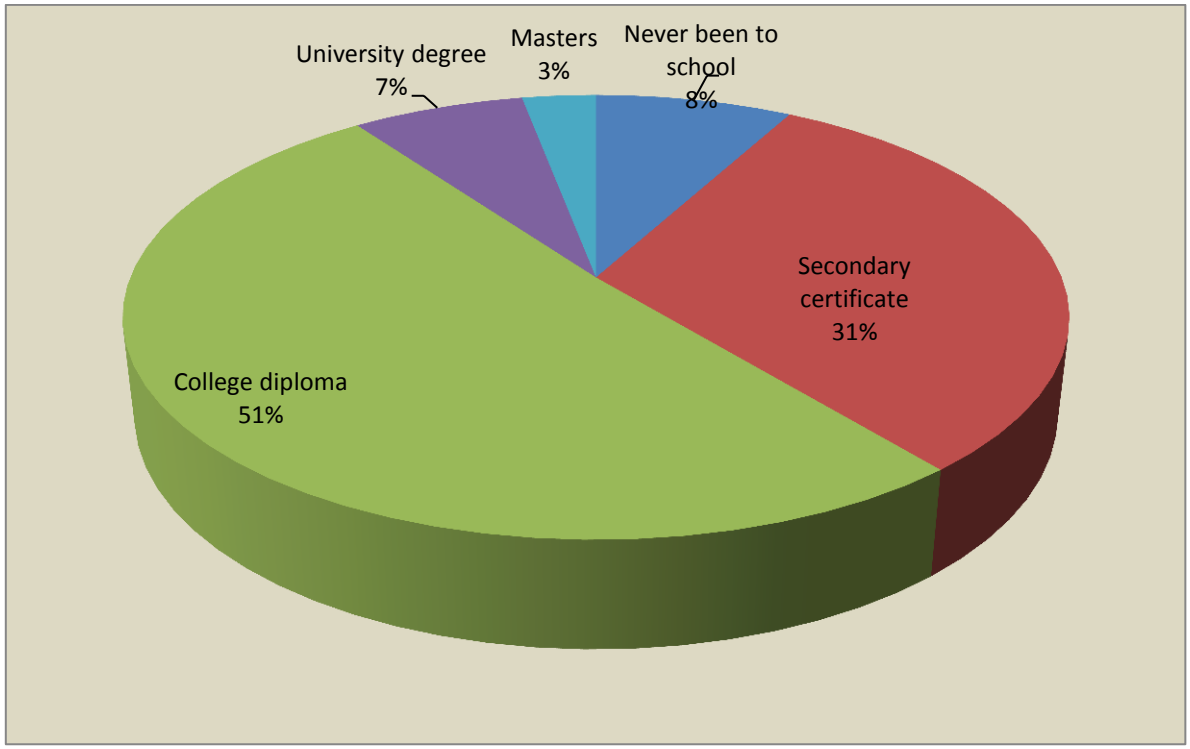
Comment: Thirty-nine percent (39%) of the respondents are within the age group of 20–29 years followed by the age group of 30 – 39 years with twenty-nine percent (29%). The lowest are the age groups of over fifty years (4%) and under twenty years (8%). This result indicates that most of the SME owners in the Borolong area of Botswana are aged between 20 and 39 years old and make up sixty-eight per cent (68%) of the population. This is true because the government of Botswana has a lot of programme that are aimed at training and funding the youth in SME projects and that's why the majority of SMEs owners are youths. Such programmes like Youth grants and the Young farmers' fund from CEDA are aimed at assisting young entrepreneurs with funds and training to start their businesses.

This study's findings are similar to the study done by Moaisi (2005) on factors affecting the growth of small and micro manufacturing enterprises in Botswana. His study explained that the peak entrepreneurial age is between the twenties and late thirties of participants. This indicates that the optimum age for entrepreneurs is between the ages of 20 and 39 years.

4.2.1.3 Highest education qualification

Figure 4.4 shows the education levels of respondents

Figure 4.4 Highest education qualifications




Comment: Fifty-one percent (51%) of the respondents have college diplomas, followed by those with secondary certificates with thirty-one percent (31%). Eight percent (8%) belongs to those with university degree qualifications and those who have never been to school are represented by seven percent (7%). The lowest percentage (3%) goes to those who have master's qualifications. The results show that respondents in the Borolong area of Botswana are educated. The highest qualifications of most respondents are college diplomas and high school certificates followed by degree holders. These results may suggest that, if you are educated, chances of identifying a good business opportunity and succeeding in it are high. Only three per cent of the respondents have master's or higher qualification and the reason for this lower percentage might be that most of the master's holders are employed in formal jobs.

These findings are in agreement with a study done by Yusuf (2013) who was researching on the impact of SMEs in Rwanda. Yusuf's study found that most of the

SMEs' owners are college diploma-holders and bachelor degree holders. The lowest percentages were for master's holders and above.

### 4.2.2 Section B: Demographic data of SMEs

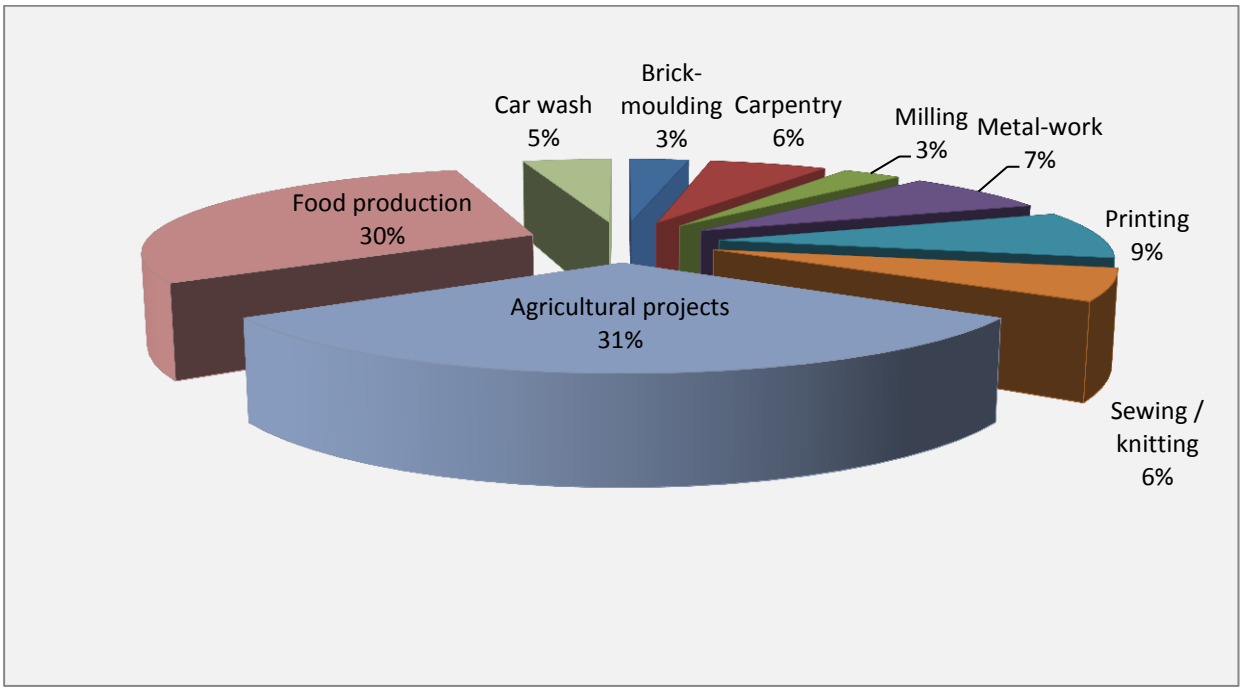
This section identified and discussed demographic factors related to SMEs in the Borolong area of Botswana. Aspects like business sector, number of employees, annual turn-over and the registration of the business will be discussed in this section. According to Zindiye (2008:147), demographic data of SMEs are needed to obtain information about the enterprise.

This demographic factor of the SME enterprise examines the business sector which the SME belongs to. This information is important because it will resemble the most dominant sector of SMEs in the Borolong area of Botswana.

#### 4.2.2.1 Business sector of the SME

Results obtained regarding the type of business sector which the SMEs belong to are shown in the figure 4.5.

Figure 4.5 Business sectors of the SMEs

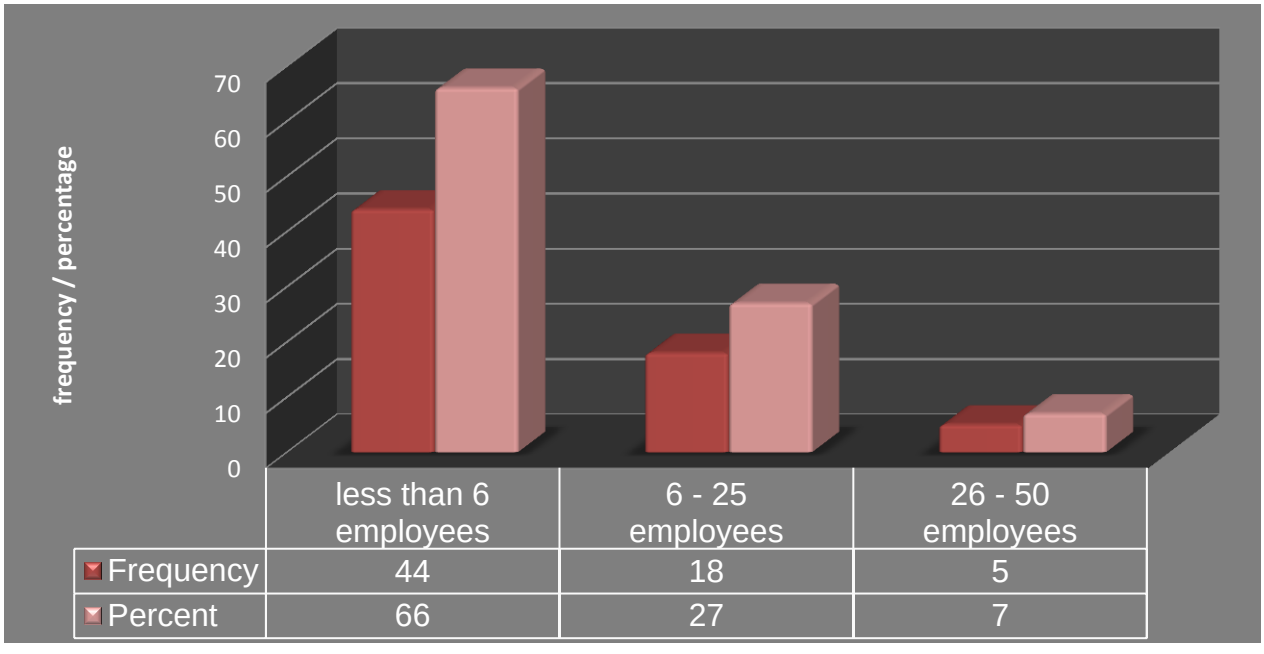


Comment: The highest percentages (31%) of respondents are those who are involved in Agricultural projects seconded by those involved in food processing (30%). The rest of the business sector ranges between two to nine percent. The high number of Agricultural projects could be caused by the Government programme namely the Young Farmers' Fund and Youth grants from the local municipality. These programmes are aimed at helping the youth in starting agricultural projects through providing funds and training. These initiatives are done to curb the shortage of food in the country because Botswana at the moment is experiencing a shortage of food. The food-processing projects are also many due to the fact that the government of Botswana does not impose a lot of regulations on the food-processing business, as a result more entrepreneurs are drifting towards the food-processing industry. 2% belongs to the milling sector. This sector comprises few milling firms because it is located in rural areas and most people here they used traditional methods of making their own maize meal hence having many milling firms won't be a good business decision.

Findings are similar to those found by Zindiye (2008) on factors affecting the performance of SMEs in manufacturing SMEs of Harare. His findings revealed that the food-processing industry dominated the small business sector in Harare.

4.2.2.2 Number of employees

Figure 4.6 Number of employees in the business

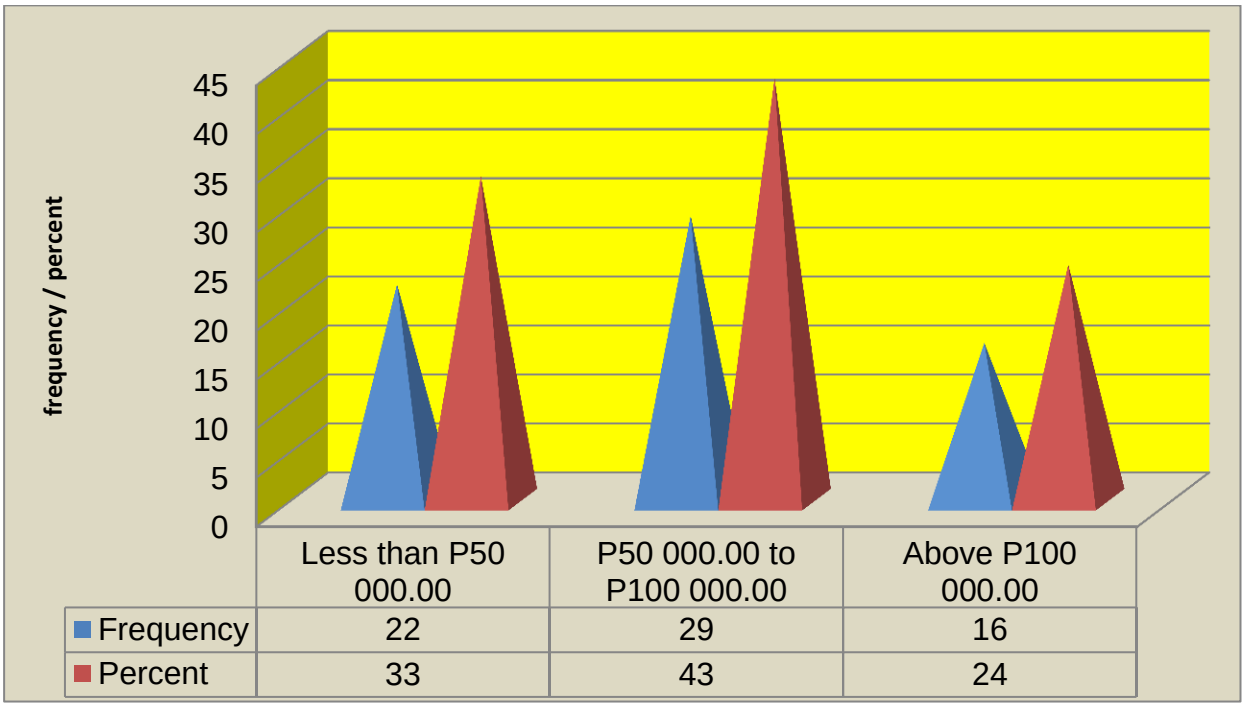


Comment: Sixty-six percent (66%) of the SME in the Borolong area of Botswana have fewer than five employees. SMEs which have employees between five and fifteen make up only twenty-seven per cent (27%). Those with employee numbers between 26 and 50 employees comprise only seven percent (7%).

Based on the definition of an SME given in the literature review in Botswana context, sixty-six percent (66%) of the respondents can be classified as micro-enterprises (employees less than 6), twenty-seven percent (27%) as small enterprises (6 -25 employees) and lastly seven percent (7%) can be classified as medium enterprises. This study shows that most of SMEs (93%) in the study belong to micro- and small enterprises. These SMEs are located in rural villages and they have a small market niche to buy their products, as a result of these they are forced to employ small numbers of people because they don't need to produce more products. It's only a few SMEs that have many employees and those are the ones who sell their products to nearby towns and big villages. These findings are consistent with a study done by Yusuf (2013) on SMEs of Rwanda who found that ninety-five per cent (95%) of SMEs in Rwanda belong to micro- and small enterprises.

4.2.2.3 Business annual turnover

Figure 4.7 Business annual turn-over




| | Less than P50 000.00 | P50 000.00 to P100 000.00 | Above P100 000.00 |
|---|---|---|---|
| Frequency | 22 | 29 | 16 |
| Percent | 33 | 43 | 24 |

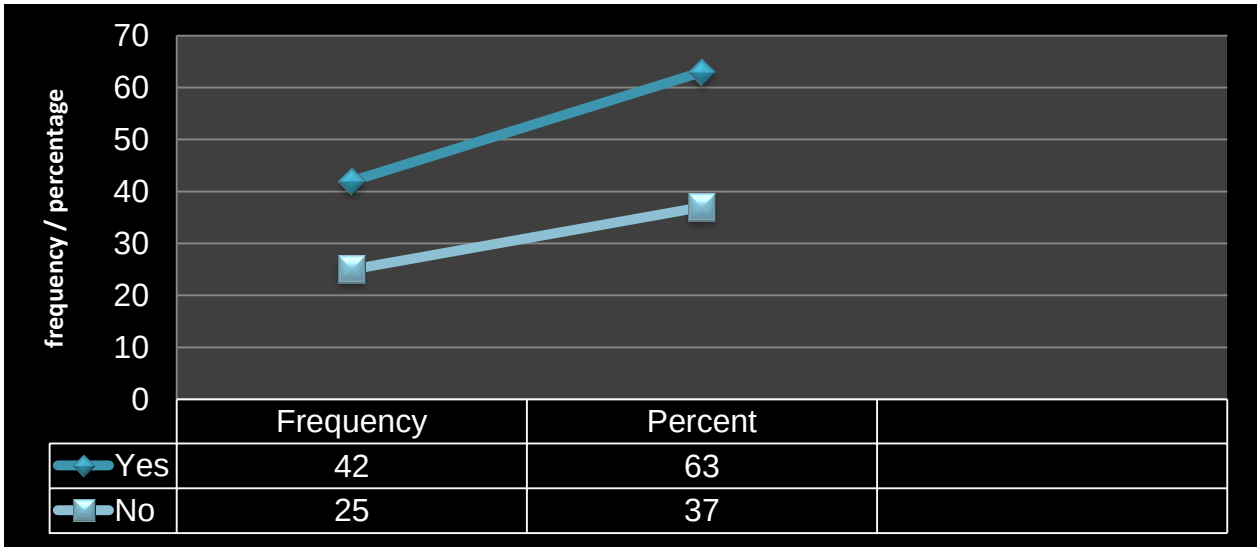
Comment: Forty-three per cent (43%) of the SME in the Borolong area of Botswana has a turnover of between P50 000.00 and P100 000.00, followed by SMEs which have an annual turnover of less than P50 000.00 making thirty-three per cent (33%) of the population. Twenty-four per cent (24%) are for those SMEs which have an annual turnover of above P100 00.00.

Based on the definition of an SME given in the literature review in Botswana context, forty-three percent (43%) of the respondents can be classified as micro-enterprises (annual turnover is between P50 000.00 and P100 000.00), thirty-three per cent (33%) as small enterprises (annual turnover of less than P50 000.00) and lastly twenty-four per cent (24%) can be classified as medium enterprises (annual turnover of above P100 000.00). This study shows that most of SMEs (76%) in the study belong to micro- and small enterprises. These SMEs are located in rural villages and they have a small market niche to buy their products, as a result of these few customers most of the SMEs make an annual turnover of less than P100 000.00.

This results are consistent with the results found in the BIDPA report (2009) which found that most of the SMEs in Botswana can be classified as small enterprises (44%) because they have an annual turnover of between P50 000.00 and P100 000.00. The BIDPA report (2009) was a research on the performance and competitiveness of small and medium-sized manufacturing enterprises in Botswana.

4.2.2.4 Registration of business

Figure 4.8 Registration of business

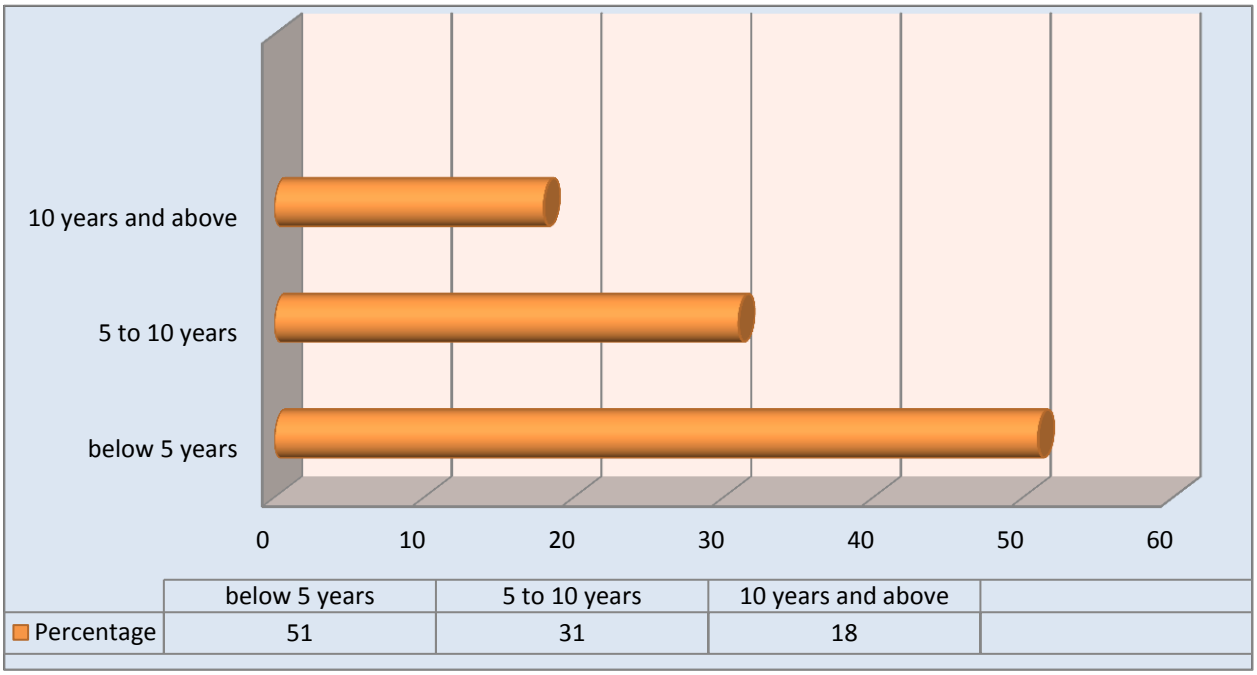


Comment: The findings of the study have showed that sixty three percent (63%) of the SMEs in the Borolong area of Botswana are formally registered and only thirty seven percent (37%) is not registered. This high percentage of SMEs that are formally registered might be due to the fact that the government of Botswana through its programmes can only give assistance (funding) only to formally registered companies. Therefore, most SMEs are registered so that they can enjoy those benefits.

4.2.2.5 The number of years the SME has been in operation

Findings regarding the number of years the SME have been in operation are shown on the figure 4.9.

Figure 4.9 Number of years the firm has been in operation




Comment: Fifty-one percent (51%) of SMEs have operated for a period of less than five years, 31% have been in operation for five to ten years, and only eighteen per cent have been in operation for over ten years. These findings show that most of SMEs (82%) in Borolong area of Botswana have been operating for less than ten years. Only, eighteen per cent (18%) have operated for a period longer than ten years.

These findings are similar to a study done by Yusuf (2013) on SMEs of Rwanda. His study found that majority of SMEs (65%) had operated for fewer than ten years. Recent intervention by the government of Botswana in funding and training small-scale

entrepreneurs for the past few years is the main reason why most of the SMEs have been established and because those interventions are recent, it makes sense that most of them have operated for less than five years.

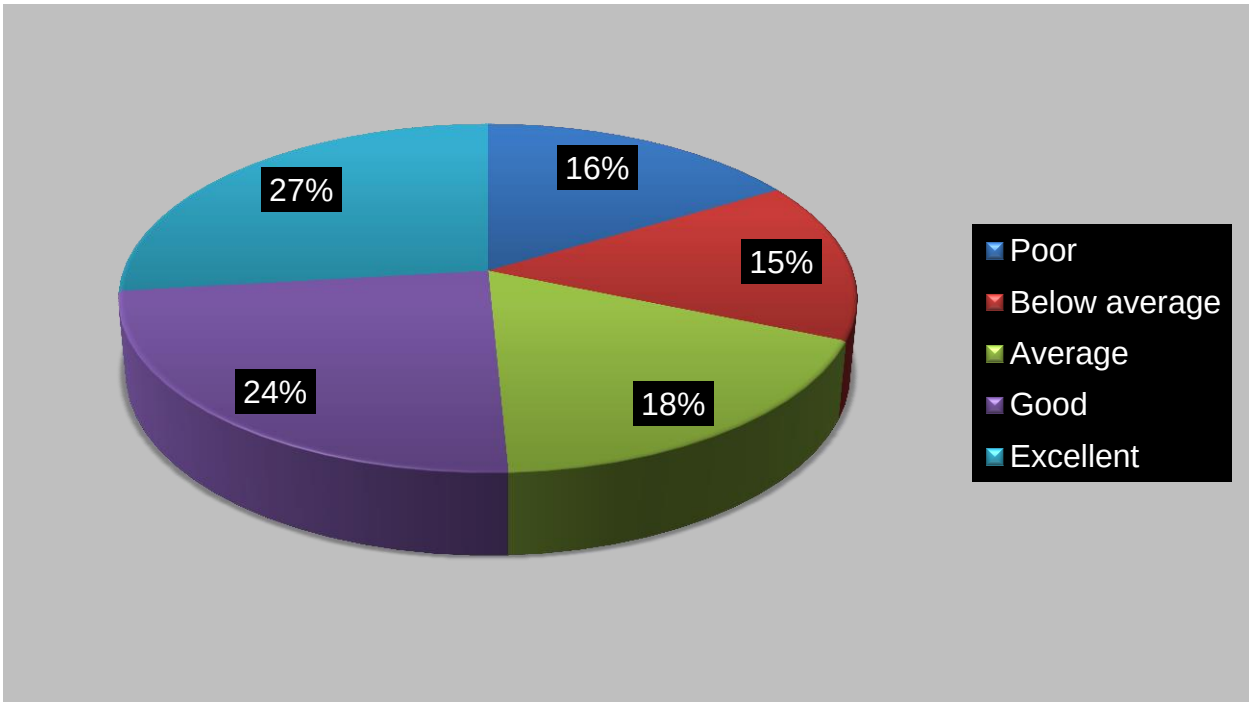
### 4.2.3 Section C: Management / Operational activities

This section identified and discussed management or operational activities in relation to ICT adoption by SMEs in the Borolong area of Botswana. Aspects like accessibility to ICT tools, competence and barriers towards ICT adoption are discussed in this section.

#### 4.2.3.1 Accessibility to ICT tools

The figure 4.10 describes findings on the levels of ICT accessibility by SMEs in the Borolong area of Botswana.

Figure 4.10 Business accessibility to ICT tools



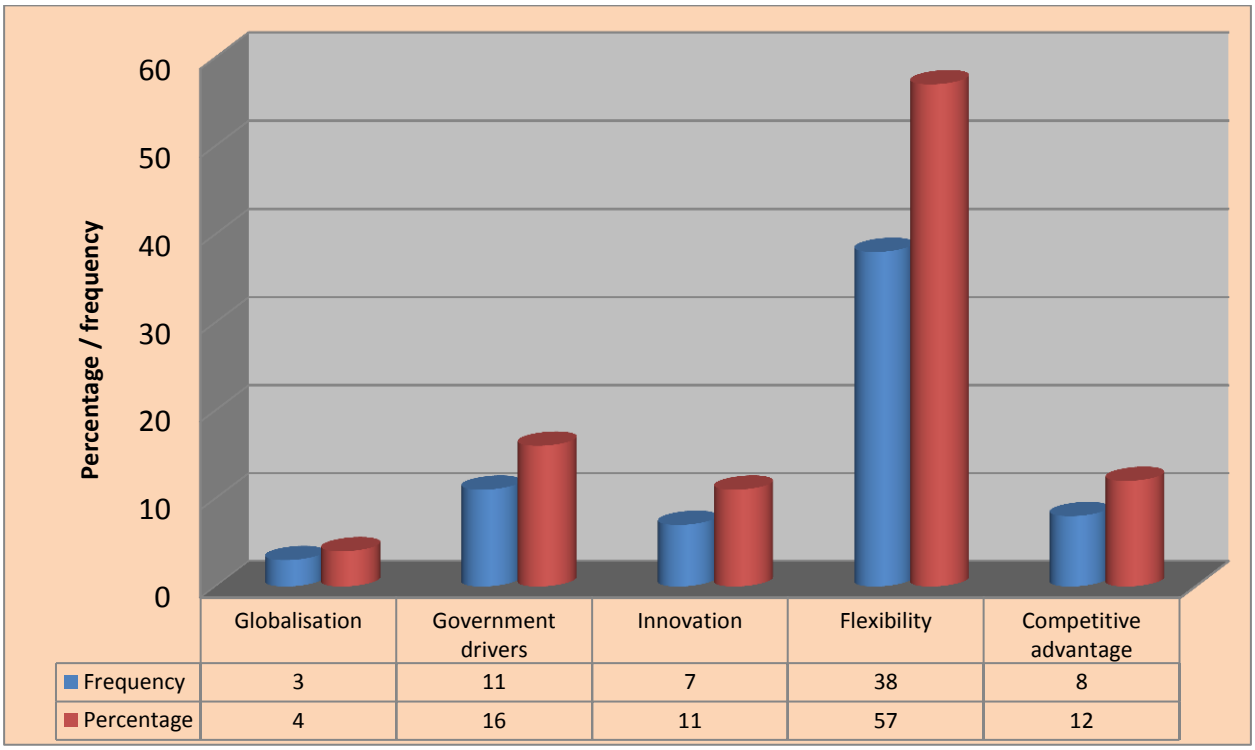

Comment: A total of twenty-seven percent (27%) of SMEs in the Borolong area of Botswana have indicated that they had excellent access to ICT tools, followed by twenty-four per cent (24%) who have good access to ICT tools. Those with an average level of access to ICT tools make up eighteen percent (18%) of the total population. Only sixteen percent (16%) of the SMES have poor or no access to ICT tools and fifteen

percent (15%) have below average access. This means that the majority of SMEs (51%) in the Borolong area of Botswana have access to ICT tools. These could be due to the fact that the government of Botswana is encouraging entrepreneurs to use ICT in their firms. The Botswana government has created The National ICT policy called Maitlamo which is aimed at assisting small-scale entrepreneurs in adopting ICT into their businesses through funds and training opportunities.

This study is consistent with results found by research done by Modimogale and Kroeze (2011) which indicated that SMEs in Gauteng have access to user-friendly tools such as telephone, fax, point of sale (POS) and credit card machines to facilitate the use of ICT in these circumstances. The results are also in line with a study done by Yusuf (2013) on the Impact of ICT on SMEs in Rwanda. His research found that a total of sixty-four per cent (64%) indicated that they used ICT on regular basis. Eleven percent (11%) indicated that they use it sometimes while a total of twenty-one per cent (21%) make very little use of ICT and five per cent (5%) do not use it at all. Also Mutula and Van Brakel (2006) said that a number of companies in the SME sector were fairly well plugged into technology in Botswana.

4.2.3.2 Drivers of ICT adoption

Figure 4.11 Drivers of ICT adoption



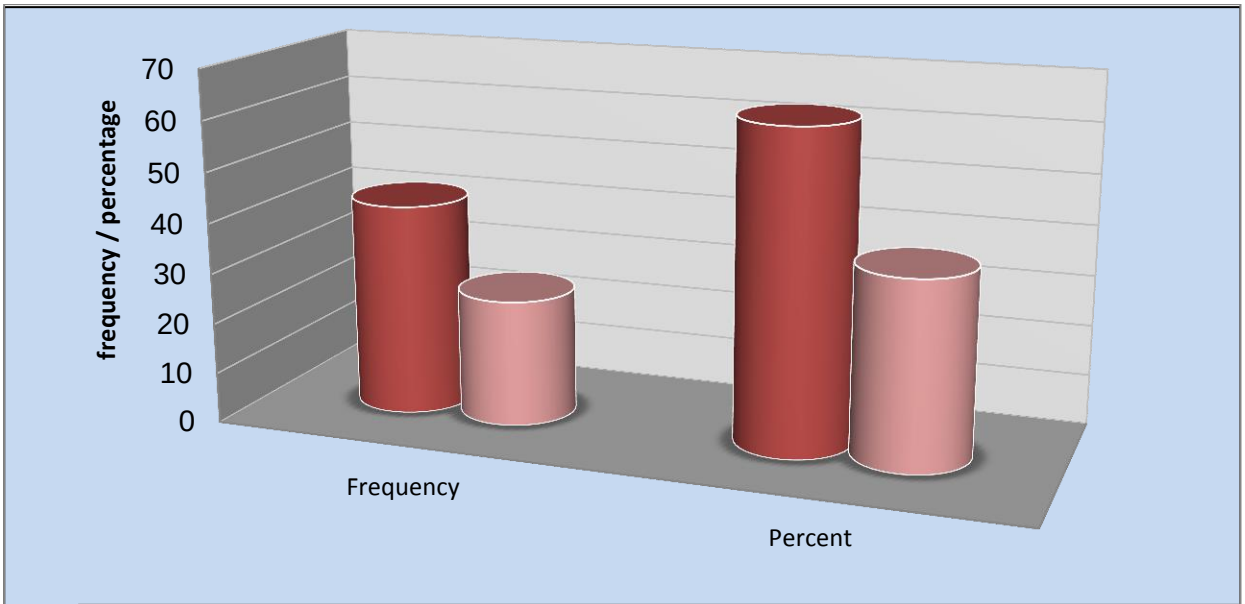

| | Globalisation | Government drivers | Innovation | Flexibility | Competitive advantage |
|---|---|---|---|---|---|
| Frequency | 3 | 11 | 7 | 38 | 8 |
| Percentage | 4 | 16 | 11 | 57 | 12 |

The findings of the study indicate that the most driving force for SMEs to adopt ICT is to be flexible and this is reflected by fifty seven percent (57%) of respondents who have indicated that. This is followed by sixteen per cent (16%) of respondents who indicated the government as their driver of ICT adoption. The lowest per centage of four per cent (4%) was for those who indicated that globalization was their driver of ICT adoption. This result indicates that the majority of SMEs in the Borolong area of Botswana are driven by the flexibility of ICT tools in running the business. These results differ from a study presented by the BIDPA report (2009) which indicates that the most driving force for ICT adoption by SMEs in Botswana are government drivers. It also differs from a study done by Apulu and Latham (2011) on SMEs of Nigeria where their study indicated that the driving force of ICT adoption in SMEs of Nigeria was to gain a competitive advantage. It can be concluded that it is possible for SMEs in different areas to have different drivers of ICT adoption.

4.2.3.3 Competence in using ICT tools

The figure 4.12 describes findings on whether the respondents have knowledge of or competence in using ICT tools.

Figure 4.12 Competence in using ICT tools




| | Frequency | Percent |
|---|---|---|
| Yes | 42 | 63 |
| No | 25 | 37 |

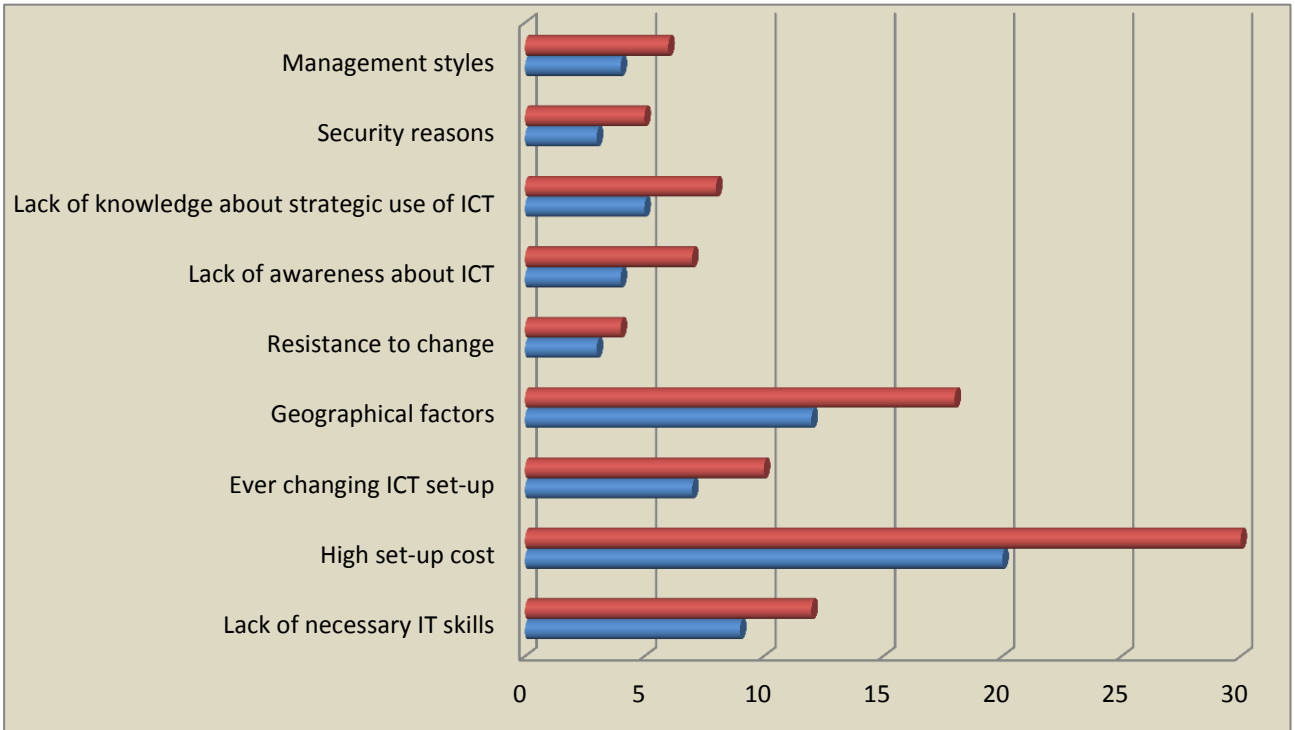
Comment: The findings show that 63% of the respondents know how to use ICT tools and only thirty-seven percent (37%) don't have the skills or competence in using ICT tools. Most of the respondents have competence in using ICT tools to due to the on-going ICT training provided by the Government of Botswana through the Maitlamo policy. These training activities are done in several villages around the country and everyone is allowed to attend those workshops.

These results are consistent with a study done by Modimogale and Kroeze (2011:42). Their study found that 90% of the respondents were competent in using ICT tools. Their study was intended to investigate how ICT usage on SME of Gauteng could give them a competitive edge.

4.2.3.4 Barriers towards ICT adoption

The figure 4.13 describes findings on SMEs barriers towards ICT adoption.

Figure 4.13 Barriers towards ICT adoption




| | Lack of necessary IT skills | High set-up cost | Ever changing ICT set-up | Geographical factors | Resistance to change | Lack of awareness about ICT | Lack of knowledge about strategic use of ICT | Security reasons | Management styles |
|---|---|---|---|---|---|---|---|---|---|
| Percent | 12 | 30 | 10 | 18 | 4 | 7 | 8 | 5 | 6 |
| Frequency | 9 | 20 | 7 | 12 | 3 | 4 | 5 | 3 | 4 |

Regarding the limiting factors of ICT adoption, thirty percent (30%) of the respondents indicated that high set-up cost of ICT tools was the major barrier preventing ICT adoption and they were followed by those who experienced geographical factors as barriers with eighteen per cent (18%). Twelve per cent (12%) of the respondents indicated that lack of necessary IT skills as their barrier towards ICT adoption and only ten per cent (10%) was for those who experience the ever-changing ICT set-up as a barrier. Only seven per cent (7%) of the respondents explained that lack of awareness about ICT tools and another six per cent (6%) described management styles as a barrier and five per cent (5%) indicated security reasons as a barrier to ICT adoption. Lastly only four per cent (4%) indicated resistance to change as their limiting factor towards ICT adoption.

Most of the respondents considered high set-up cost as their limiting factor and this might be due to the high electricity installation costs into their firms. Even the purchase of the ICT tools was also very expensive. Even after purchasing them, an expert in the field of IT is needed to install them and those experts also charge a lot of money. The second highest number of respondents was for those who indicated the geographical area as a barrier and this might be due to the poor network in rural areas and inadequate supply of electricity. Yusuf (2013:66) stated that barriers towards ICT adoption over time change (will not exist forever) and might vary along the adoption ladder. SMEs experiences different barriers from one area to another. The most vital aspect in successfully adopting ICT is located in the management's attitude and skills level in restructuring the business process to make better use of ICT tools.

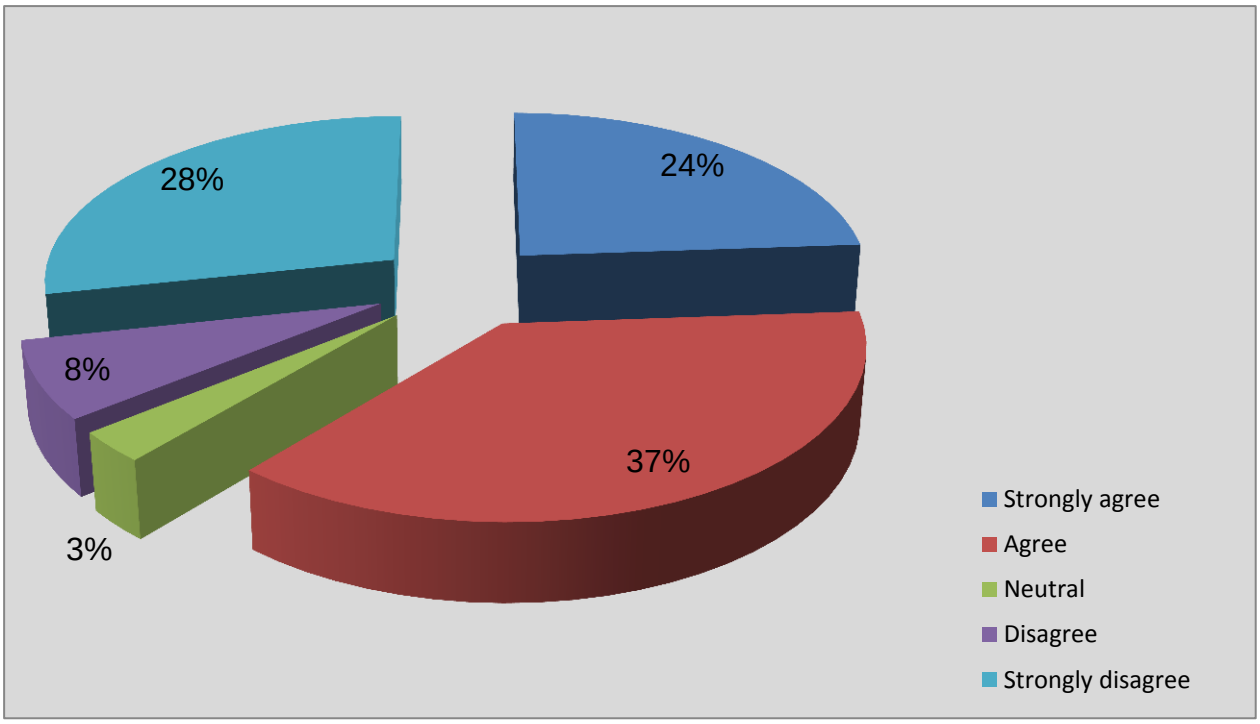
### 4.2.4 Section D: Management / Operations activities

This section identified and discussed the assistance that the government of Botswana is doing with regard to ICT adoption by SMEs in the Borolong area of Botswana. Aspects like funding and training of SMEs are discussed in this section.

4.2.4.1 Funding support by the government

The figure 4.14 describes findings on the level of support SMEs receive from the government of Botswana.

Figure 4.14 Funding support by the government of Botswana




Comment: the respondents were asked to indicate the level of funding support they receive from the government. 37% of the respondents agreed that the government of Botswana was supporting them with funds to run their businesses. Twenty-eight per cent (28%) strongly agreed that the government was supporting them with funds. Three per cent (3%) were just not sure whether the government really supports them financially. The second biggest percentage which is twenty-eight per cent strongly disagreed that the government of Botswana was supporting them financially to run their businesses and only eight per cent disagreed that the government of Botswana was supporting their enterprises with funds.

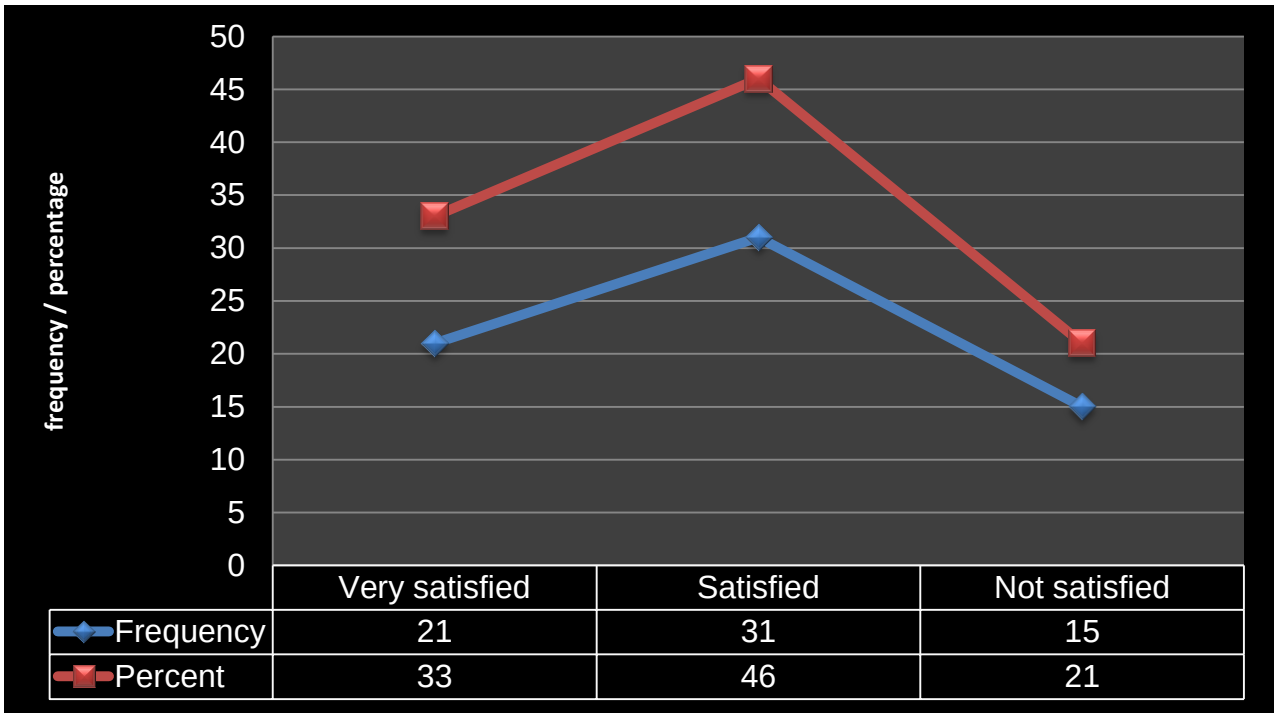
In overall terms, it can be concluded that the majority (61%) of SMEs in the Borolong area of Botswana agree that the government of Botswana is supporting them with funds (through its programmes) to run their business while only thirty-six per cent (36%) disagree that the government supports them with funds. Reasons why most of the

respondents agree that they are being supported by the government with funds because most of the SMEs in the Borolong area are formally registered hence they are eligible to receive funds from the government to run their enterprises.

4.2.4.2 Training programmes provided by the government.

The figure 4.15 describes findings on the level of training programmes provided by the government of Botswana.

Figure 4.14 Training programmes provided by the government of Botswana.




Comment: The respondents were asked to indicate their satisfaction level with regard to the training programmes they receive from the government of Botswana. 46% of respondents showed that they are satisfied with the training programmes provided while thirty-three per cent (33%) stressed that they were very satisfied with the training programmes provided. Only twenty-one per cent (21%) differed from the rest and indicated that they were not satisfied with training programmes provided.

Overall, the majority (79%) of the respondents of the Borolong area of Botswana are satisfied with the training provided by the government of Botswana and only twenty-one per cent (21%) of the respondents showed some dissatisfaction. This high percentage of satisfaction can be attributed to the fact that everyone is are allowed to attend those

training workshops, unlike funding programmes which only assist those SMEs that are formally registered.

### 4.2.5 Section E: Effects of ICT adoption on SMEs

This section identified and discussed the effects of ICT adoption on the production of SMEs in the Borolong area of Botswana and the value ICT adoption has added to the overall business.

#### 4.2.5.1 Effects of ICT adoption by SMEs on production

The table 4.1 describes findings on the effects of ICT adoption by SMEs on production.

Table 4.1: Effects of ICT adoption on production

| | Improves efficiency of production process | Fast and accurate decision making | Improves information gathering and dissemination | Improves inventory control | Improves quality of products | Improves production operations | Enhance innovativeness | Employees can work remotely |
|---|---|---|---|---|---|---|---|---|
| Strongly agree | 28 | 39 | 23 | 24 | 66 | 36 | 32 | 55 |
| Agree | 40 | 34 | 40 | 45 | 3 | 36 | 39 | 22 |
| Neutral | 5 | 4 | 9 | 7 | 3 | 5 | 5 | 2 |
| Disagree | 19 | 15 | 18 | 15 | 18 | 19 | 22 | 15 |
| Strongly disagree | 8 | 8 | 10 | 9 | 10 | 4 | 2 | 6 |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Comment: To determine the effects of ICT adoption experienced by respondents in the Borolong area of Botswana, they were asked to choose from a list of options designed to best describe the effects of ICT adoption on production. By far, seventy-seven percent (77%) of all respondents reported ICT to have enabled employees to work remotely. This percentage clearly indicates that through the adoption of ICT, employees can make great inputs on production activities even when they are not on the production site or area. 73% of respondents have shown that the effect of ICT adoption on their production has led to fast and accurate decision making. Another encouraging aspect is

improvement in production operations with seventy two per cent (72%) of all the respondents reporting to have achieved great improvement in production operations. Seventy one per cent (71%) of respondents also reported to that ICT adoption on their production have enhanced their innovativeness as they are now able to produce better products.

69% of respondents have showed that the effect of ICT adoption on production has resulted in improvement of inventory control and also the quality of their products has also improved. More importantly, 68% of all respondents pointed out that ICT adoption in their firm have improved efficiency of production processes. This means that they are able to produce more at a lower cost. Lastly, 63% of the respondents showed that ICT adoption has led to an improvement in information gathering and dissemination.

These results clearly suggest that adopting ICT by SMEs will have positive effects on thier production. These results are consistent with results found on a study done by Yusuf (2013) on Impact of ICT on SMEs. His study results revealed a positive correlation between ICT adoption and production of the business. Also a study done by Apulu and Ige (2011) on SMEs of Nigeria indicated that ICT has a significant positive impact on organizational performance.

4.2.5.2 The value of ICT adoption on the business

The table 4.2 describes findings on the value of ICT adoption on the business.

Table 4.2 The value of ICT adoption on the business

| | Better customer responsiveness | Increase efficiency of marketing | Increase sales | Provide competitive advantage | Increase revenue | Firm goals and objectives are achieved |
|---|---|---|---|---|---|---|
| Strongly agree | 23 | 33 | 21 | 30 | 30 | 34 |
| Agree | 40 | 34 | 51 | 49 | 43 | 33 |
| Neutral | 3 | 5 | 9 | 3 | 3 | 10 |
| Disagree | 22 | 16 | 17 | 10 | 19 | 14 |
| Strongly disagree | 12 | 12 | 2 | 8 | 5 | 9 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 |

Comment: The respondents were also asked to indicate the value that ICT adoption has brought to their business. Seventy nine percent (79%) of the respondents indicated that ICT adoption to their business has given them the competitive edge over their competitors while 73% experienced an increase in revenue. Another 72% of respondents showed that they experienced an increase in sales since they adopted ICT in to their business. A further 67% of respondents revealed that, ICT has increased their efficiency of marketing hence they are able to penetrate new markets and still the same percentage of sixty seven (67%) stated that since the adoption of ICT their business is able to achieve their goals and objectives.

Respondents (63%) also indicated that since they adopted ICT they have been able to excel in responding to customer needs and only 62% of the respondents have shown that ICT enables then to integrate all their business processes. Clearly, there is a positive correlation between responses given under question on effects and value of ICT in the business. This correlation suggests that ICT is becoming a critical aspect for the success of a business and these results are consistent with a study done by Yusuf (2013). Yusuf's study pointed out that ICT adoption positively affects the overall value of the business.

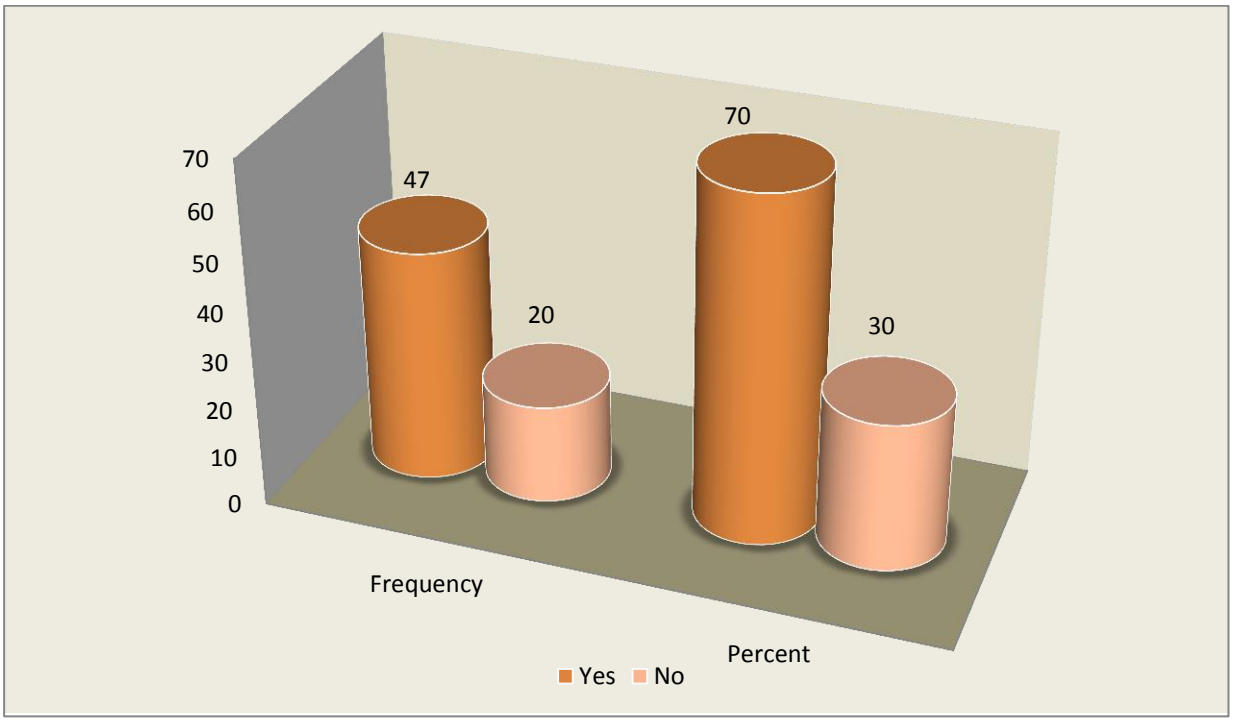
### 4.2.6 Section F: Recommendations

This section wanted to find out whether respondents can recommend other SMEs owners to adopt ICT in their business and they were also requested to justify why they would do so. Lastly the respondents were asked to mention any other assistance that they feel the government should in terms of assisting SMEs in adopting ICT.

#### 4.2.6.1 Recommendation

The figure 4.16 describes findings on whether SMEs can recommend or not recommend other SMEs to adopt ICT in to their business.

Figure 4.16 Recommendations




Comment: 70% of respondents agreed that they would recommend other SMEs to adopt ICT into their business and only thirty per cent (30%) indicated that they would not recommend other SMEs to adopt ICT into their business. These results may suggest that most of the respondents in the Borolong area of Botswana are aware of the positives that adopting ICT brings into business.

4.2.6.2 Justification to the above answer

A good number of respondents reasoned that they would recommend other SMEs to adopt ICT because of the positive effects it brings to the business. Most of the government programmes are aimed at encouraging SMEs to adopt ICT into their business and they do so by conducting workshops in villages and their main objective is to encourage entrepreneurs to adopt ICT. Hence it makes sense that most of the respondents who have already adopted ICT and those who have not yet adopted would recommend others to adopt it because it has already been told by experts (programme facilitators) that adopting ICT would positively affect the business or production. The few who indicated that they would not recommend others raised issues of high set-up cost of ICT tools and lack of IT skills as reasons why they would not recommend others.

4.2.6.3 Other forms of assistance that the government should do.

The respondents were asked to indicate other assistance that they thought the government could provide in terms of assisting them to successfully adopt ICT into their businesses. Most of the respondents showed concern with regard to lack of diffusion of grid electricity to rural areas. They stated that almost all the ICT tools need electricity to function and when electricity is not available, it would not make any business sense to adopt ICT. And they also raised the concern that connecting electricity to their business areas is also very expensive hence the government should reduce electricity installation fees for SMEs. They also complained of poor network coverage in rural areas and the government should talk to network providers so that they could improve the situation because most of the ICT usage requires good network coverage.

Respondents stated that it takes a long period to finish the registration of an SME because they need lots of information and this is one of the reasons why most of the SMEs are not registered, therefore the government should shorten that period. Most of the respondents also suggested that the government of Botswana should subsidize costs of ICT tools because they are too expensive for ordinary SMEs. Lastly, respondents want the government to make a condition that will force the big companies to buy their products because in most instances big companies do not buy products from SMEs.

4.3 Cross-tabulation of variables

Cross-tabulation was used to show how the variables (dependent and independent) correlate. According to Research Advisors (2006), cross-tabulation displays the distribution of one variable within each category of another variable. It basically shows two variables simultaneously.

4.3.1 Cross-tabulation of annual turn-over and status of respondents

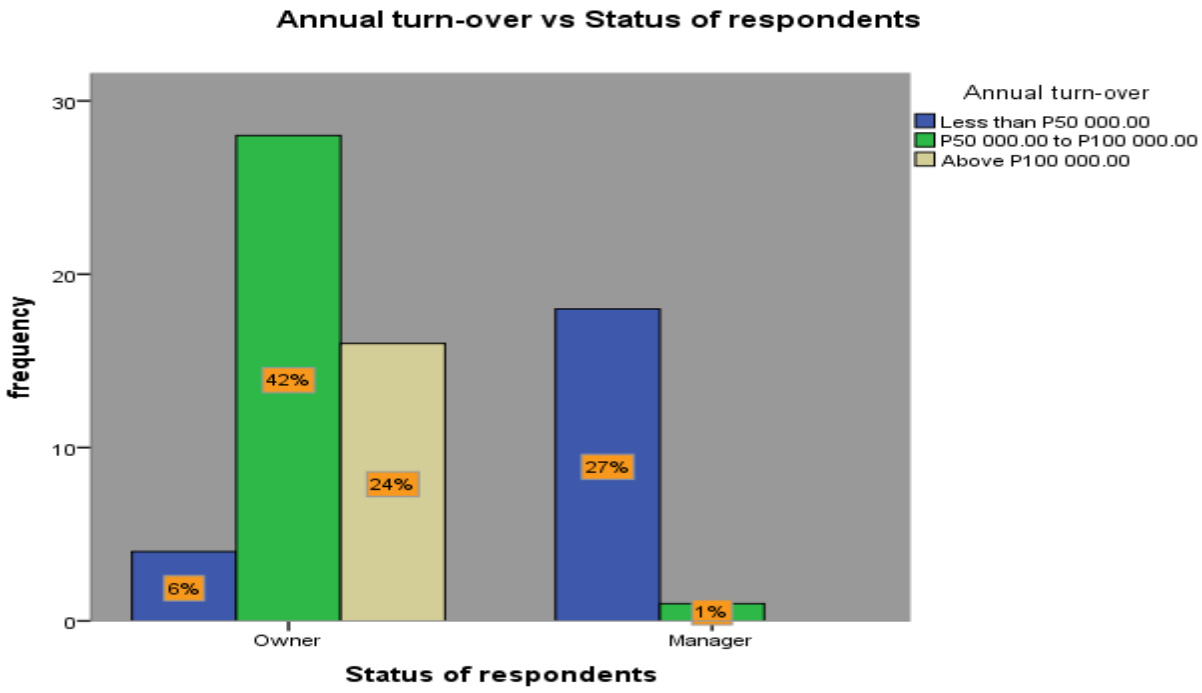



Figure 4.17 Cross-tabulation of status of respondents and annual turn-over

A total of sixty-six per cent (66%) of the respondents have an annual turn-over of above P50 000.00 and they are managed by owners whereas those who are managed by managers they only make one per cent (1%) above P50 000.00 and the rest (27%) have an annual turnover of less than P50 000.00. These results suggest that the owner-managed SMEs have a higher annual turnover than those which are managed by mangers.

These results are consistent with a study done by Modimogale and Kroeze (2011) on the role of ICT on SMEs of Gauteng who explained that owner-managed SMEs have high annual turn-overs. This was due to the fact that owner-managers are responsible for making crucial business decisions for the growth of the firm. In their study they found that most of the SMEs that are managed by owners have a higher annual turn-over.

4.3.2 Cross-tabulation of highest education qualification and competence in using ICT tools.

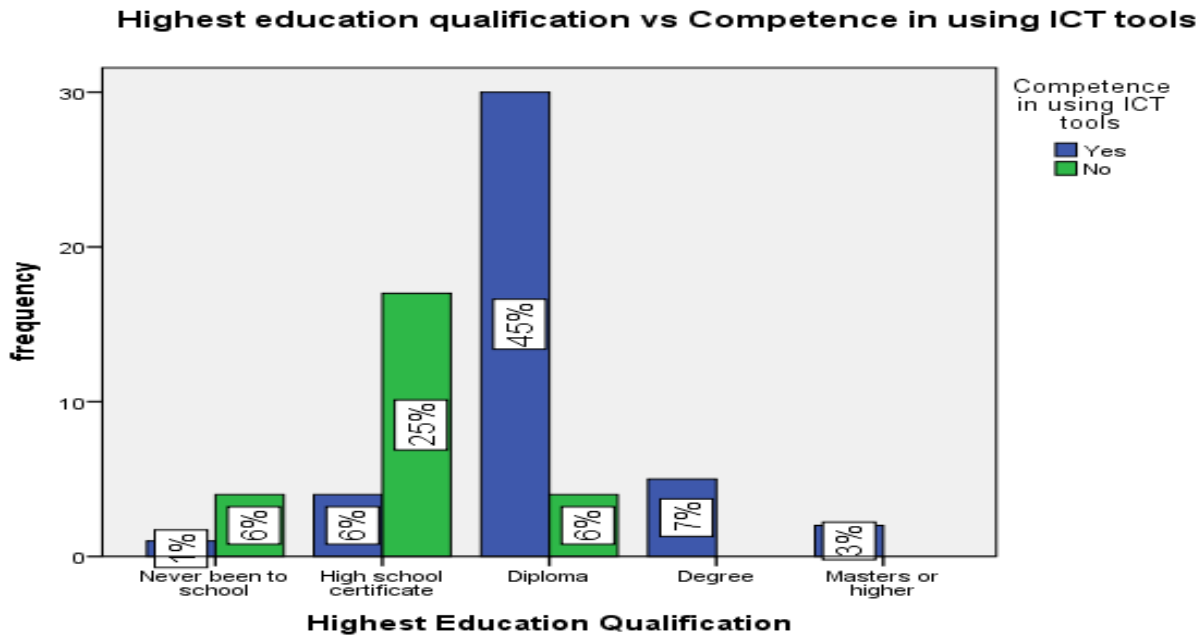



Figure 4.18 Cross-tabulation of education qualification and competence in ICT.

Comment: The findings of the study with regard to cross-tabulation done for highest education qualification and competence in using ICT tools show that fifty-five percent (55%) of respondents who hold diploma, degree and master-s or higher qualification are competent in using ICT tools and its only six per cent (6%) of those with a diploma or higher qualification who are not competent in using ICT tools. On the other hand, thirty-seven per cent (37%) of respondents are not competent in using ICT tools and their highest education qualification is a higher school certificate and below and its only seven per cent of respondents with the same qualification who are competent in using ICT tools. It can still be observed that all the respondents with degree and master's qualifications are all competent in using ICT tools.

It can be concluded that all the respondents with tertiary education are competent in using ICT tools compared to those who have high school certificates and below. This could be due to the fact that most of the curriculum in tertiary schools includes IT lesson. These results are consistent with the results of a study done by Esselaars, Stork, Ndiwalana and Deen-Swarrary (2007) who investigated ICT usage and its mpact on Profitability of SMEs in 13 African Countries. Their study found that 62% of

respondents who are competent in using ICT tools also have tertiary educational qualifications.

4.3.3 Cross-tabulation of Accessibility to ICT tools and annual turn-over.

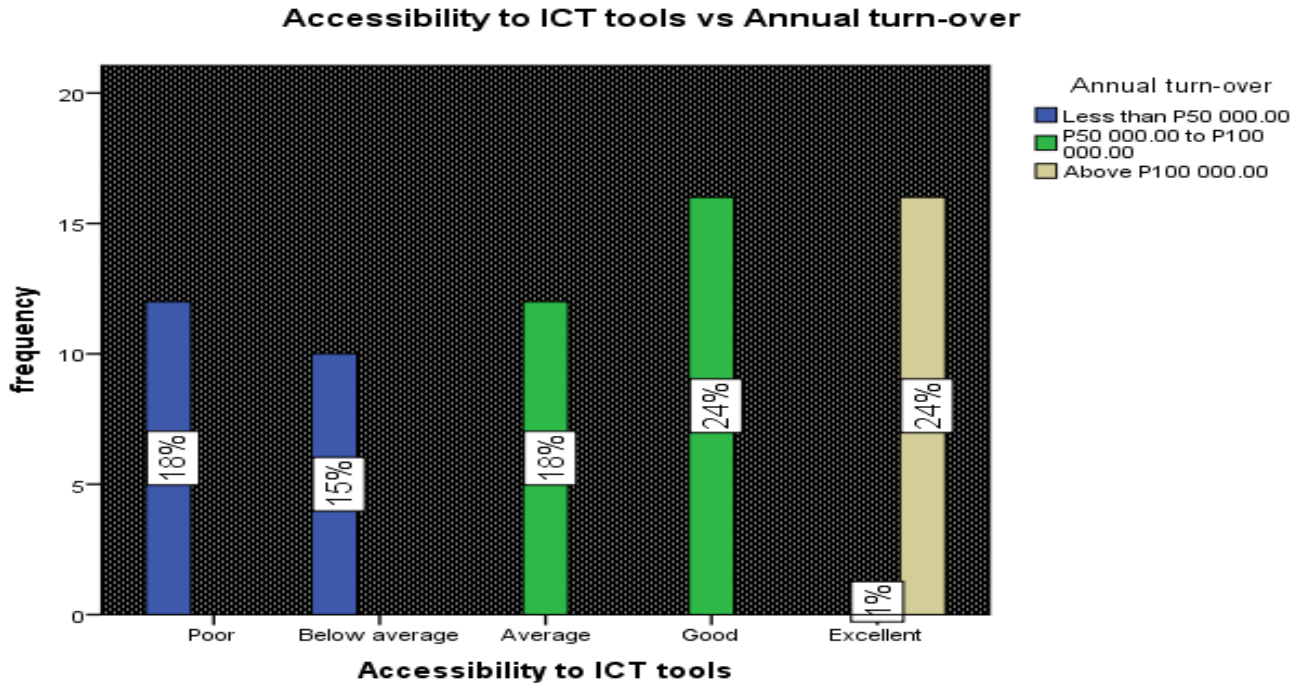



Figure 4.19 Cross-tabulation of Accessibility to ICT tools and Annual turn-over.

Comment: A cross-tabulation was done to find the correlation between accessibility to ICT tools and annual turn-over. The findings revealed that forty-nine percent (49%) of the respondents have good access to ICT tools and they have an annual turn-over of P50 000. 00 and above. Only thirty-three per cent (33%) of respondents have below average access to ICT tools and they have an annual turn-over of less than P50 000.00.

It can thus be concluded that there is a positive correlation between using ICT tools in your business and annual turn-over. Most of the respondents who have access to ICT tools have gains higher annual turn overs than those who have less access to ICT tools. This outcome is similar to the outcome of a study done by Esselaars *et al*. (2007) on the ICT usage and its impact on profitability of SMEs in 13 African Countries. Their findings showed that, SMEs who uses ICT into their business have higher profits than those who do not use it.

4.3.4 Cross-tabulation of number of years in business and accessibility to ICT tools.

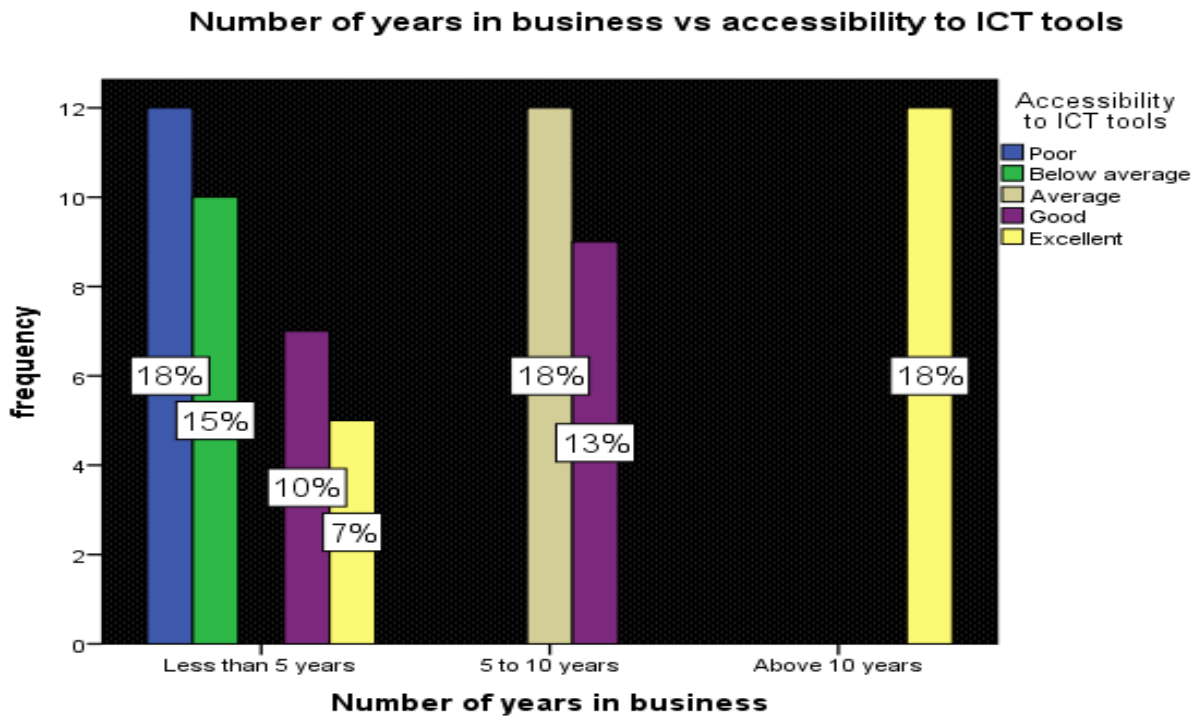



Figure 4.20 Cross-tabulation of number of years in business and accessibility to ICT tools.

Comment: the findings from this cross-tabulation show that 31% of the respondents have operated for years more than five and the very same respondents have good access to ICT tools. Thirty-three per cent (33%) of the respondents have been operating for less than five years and the very same respondents have below average access to ICT tools. These results may suggest that having access to ICT tools can sustain the business to operate for many years. These results are consistent with a study done by Modimogale (2008) on ICT and SMEs competitiveness in South Africa. His study results revealed that SMEs which have access to ICT tools operate for many years.

4.3.5 Cross-tabulation of competency in using ICT tools and Barriers towards ICT adoption

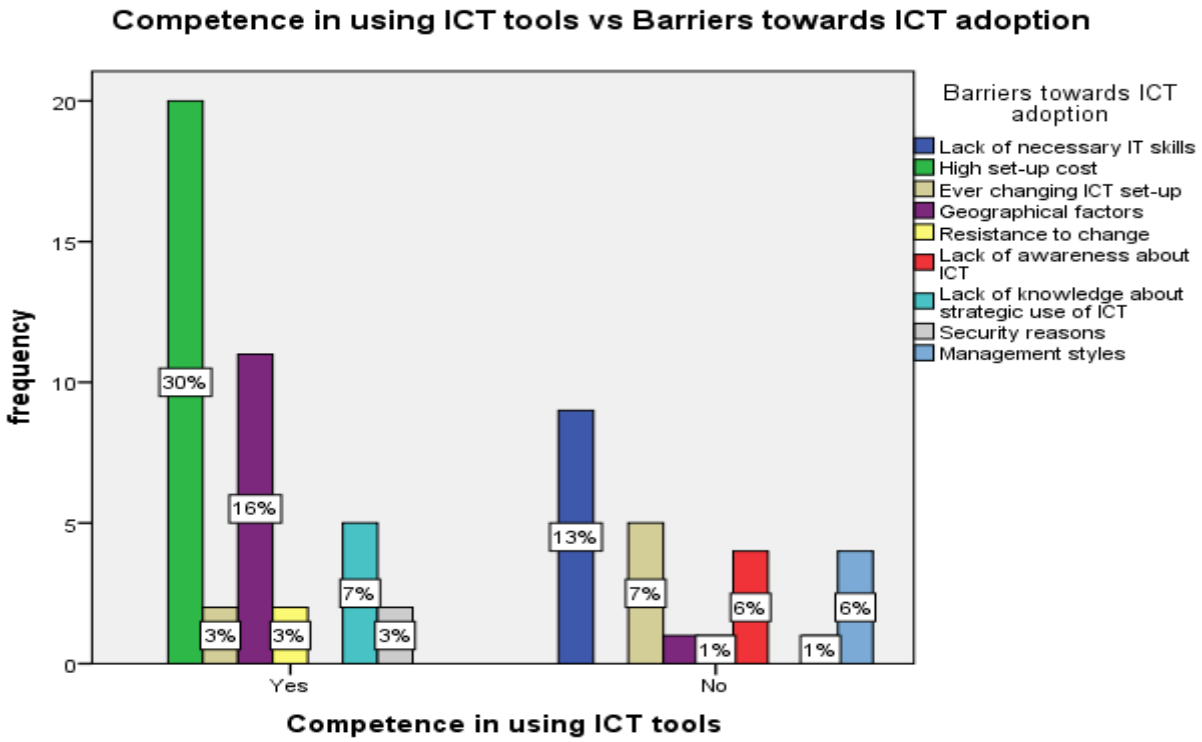



Figure 4.21 Cross-tabulation of competence in ICT tools and barriers towards ICT adoption

The results of the cross-tabulation have indicated that, majority of respondents (30%) are competent in using ICT tools and their barrier towards ICT adoption is the high set-up cost of ICT. On the other hand, majority 13% of respondents who are not competent in using ICT tools experiences experiences lack the necessary IT skills as their barrier towards ICT adoption. It can be concluded that those respondents with IT skills experiences costs of ICT set-up as a barrier and those without any IT skills experiences lack of ICT skills as a barrier. It makes sense to conclude that if you are competent in IT skills the barrier towards ICT adoption can be anything else apart from lack of IT skills and if you are not competent in ICT tools the obvious barrier could be lack of necessary IT skills.

4.3.6 Cross-tabulation of competency in using ICT tools and drivers of ICT adoption

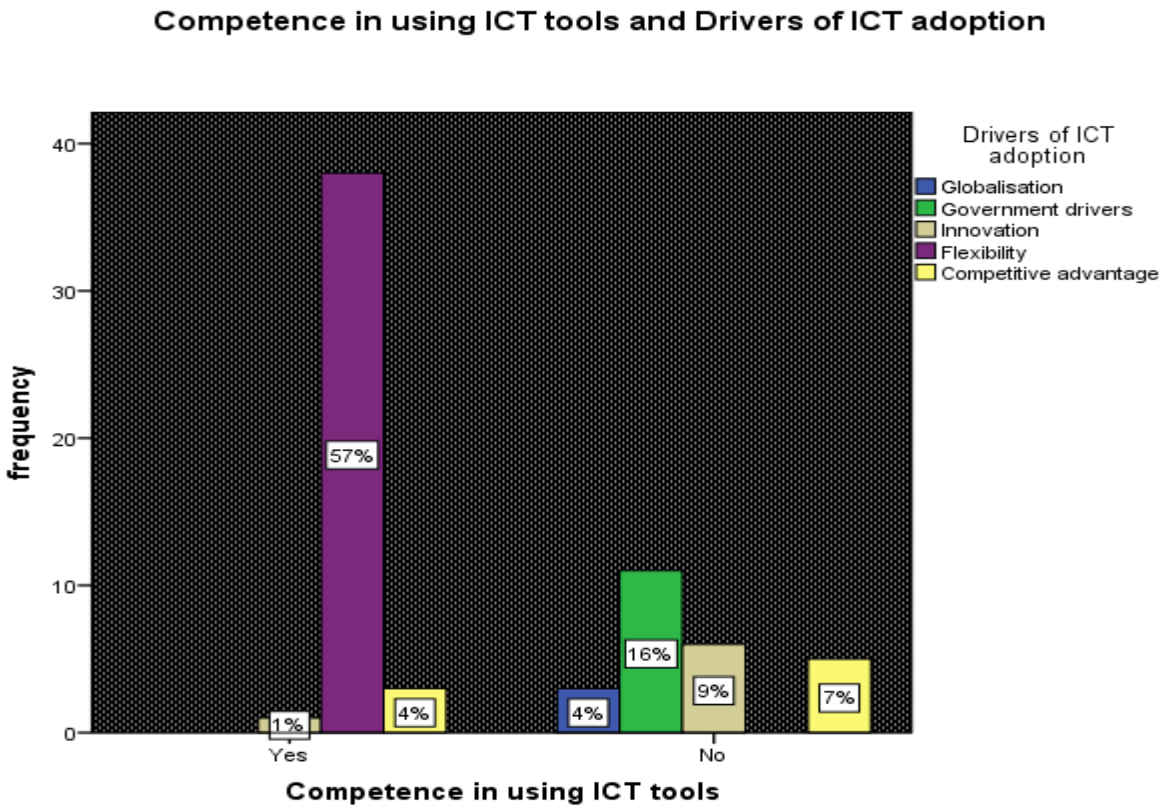



Figure 4.22 Cross-tabulation of competence in ICT tools and drivers of ICT adoption

The cross-tabulation indicates that fifty-seven percent (57%) of respondents are competent in using ICT tools and the very same respondents indicated that flexibility of running a business which comes as a result of using ICT is their main driver of adopting ICT into their business. On the other hand the majority of respondents who are not competent in using ICT tools (16%) have indicated government as their driver towards ICT adoption. This result shows that respondents who are competent in using ICT tools are in a good position to understand the advantageous flexibility that adopting ICT into your business can bring and that's why most of them have indicated flexibility of ICT tools as their driver to adopt ICT. Those who are not competent in using ICT tools are driven by the government to adopt ICT. The government through its initiatives encourages the SMEs to adopt ICT by providing training and funds. And these initiatives make those SMEs to be aware of advantages that come with the adoption of ICT, hence the government is mostly the driver of ICT adoption for those respondents who are not competent in using ICT tools.

4.3.7 Cross-tabulation of business registration and government funding

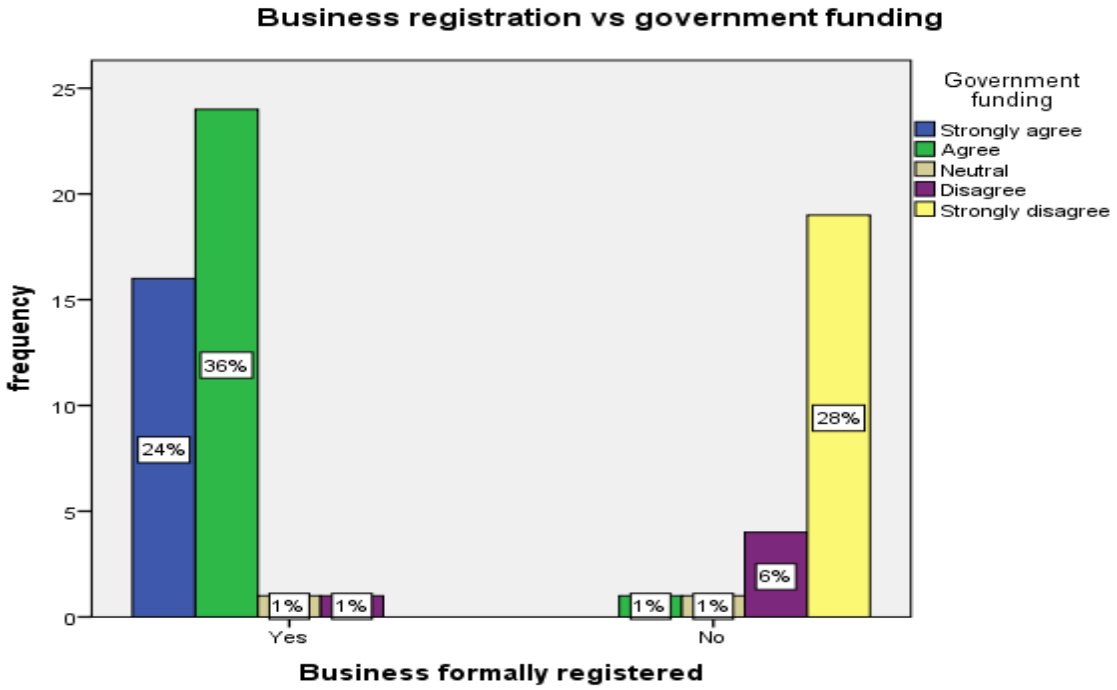



Figure 4.23 Cross-tabulation of business registration and government funding

The cross-tabulation findings of the study shows that a total of sixty percent (60%) of respondent's SMEs are formally registered with the ministry of trade and the very same respondents indicated that they are being assisted by the government with funds to aid the ICT adoption process. On the other hand a total of thirty four percent (34%) of respondents are not formally registered and they have indicated that they are not given financial assistance to run their SMEs. These results are true because the government of Botswana only gives financial assistance to formally registered companies with the Ministry of Trade and that's the reason why most of the registered SMEs agrees that indeed they receive government funding and majority of those not registered have indicated that they are not financially assisted by the government. These outcomes are in line with a study done by Nkwe (2012) which has shown that the government of Botswana gives financial assistance to formally registered companies and training opportunities are provided to all SMEs even if they are not registered.

4.4 Summary of the empirical study

The objective of the study was to answer the research questions of the dissertation. The study was carried out through a survey and a questionnaire containing twenty questions

was used as a primary data gathering instrument. The respondents were SMEs owners and managers in the Borolong area of Botswana. The data was analysed using quantitative method through the SPSS and Microsoft excel. This section summarises the results of the empirical study, which have been discussed previously in this chapter and more emphasis will be on the main research questions.

The study results have indicated that majority of SMEs in the Borolong area of Botswana are managed by owners and most of them are females. The age range of respondents is between early twenties and late thirties and most of them possess diploma and above in terms of their highest education qualification. Most of their SMEs are involved in food production and they are categorised as micro and small enterprises because they have between 1 and 25 employees and their annual turnover is less than P100 000.00. Majority of SMEs are registered with the government of Botswana and majority of them have been in operation for less than 10 years. The results show that most of them have access to ICT tools and they are even competent in using them. The study also shows that flexibility of ICT tools in terms of doing business operations is the main driver of ICT adoption in Borolong area. They have also indicated that high set-up cost as their main barrier towards ICT adoption. Most of them indicated that they are being assisted by the government through funds and training.

Cross-tabulations were used to show how the variables correlate. The first cross-tabulation indicated that SMEs that are managed by their owners attain a higher annual turn-over than those which are managed by managers. Owner managers are responsible for making crucial decisions regarding the business and if they are technology literate, they will include ICT into their daily operations hence production will improve and ultimately the annual turn-over. The cross-tabulations also showed that respondents who are competent in using ICT tools are those who are educated and in this study only those with diploma up to masters qualification are competent. Another cross-tabulation was performed and it showed that all the respondents who indicated that they have higher annual turn-overs are those who have access to ICT tools. These results might suggest that involving ICT into the firm’s operations will result in improved production and ultimately the annual turn-over will also improve. The cross-tabulations also indicated that all the SMEs that have adopted ICT into their business have operated for many years. This suggest that, if an SME have access to ICT tools it will be able to sustain itself, hence it will operate for many years.

The cross-tabulation also indicated that, all the SMEs whose managers are competent in using ICT tools experience high set-up cost of ICT tools as their barrier towards ICT adoption. Those SMEs that have managers who are not competent in using ICT tools indicated lack of necessary IT skills as their barrier towards ICT adoption. All the respondents who are competent in using ICT tools also indicated that their driver towards ICT adoption is the flexibility that ICT brings into the business operations and those respondents who are not competent in using ICT tools indicated that their driver towards ICT adoption is the government. This results may suggest that if you are competent in using ICT tools, you are in a good position to know the flexibility that ICT can bring to the business operations hence it will be reasonable to adopt ICT. Those who are not competent will only be driven by the government to adopt ICT. This can be true because the government through its programmes encourages people to adopt ICT. Lastly, the cross-tabulations also indicated that all the SMEs that are assisted by the government through funds are only those that are formally registered with the Ministry of Trade. This means that for SMEs to qualify to be financially assistance by the government they first have to be formally registered.

Question 1. Do the SME's of Borolong areas of Botswana have access to ICT tools?

With respect to the first question which wanted to find out if SME's of Borolong areas of Botswana have access to ICT tools. The results findings showed that a total of fifty one per cent (51%) of the respondents have access to ICT tools and a total of only thirty one per cent (31%) of the respondents does not have access to ICT tools. It can be concluded that majority of SMEs in the Borolong area of Botswana have access to ICT tools. Majority of the respondents have indicated that the ICT tools that they normally use is landline telephones, radio, cellphones, fax machine and computers.

The research findings correlate positively with the literature. According to Mutula and Brakel (2007), the government of Botswana owns one of the most extensive computer networks in the country, covering nearly 100 villages and towns, and connecting over 7000 civil servants. SMEs in rural areas have taken advantage of these networks and use them even though they are required to pay in order for them to use them. They normally use these computer networks for printing, faxing and emailing documents. Moasi (2005) has also reported that radio is by far the most diffused of all ICTs in Botswana, with 68% of households owning a radio set. Radio is vital for its importance

as a medium of information exchange. Procter and Shemi (2013:20) reported that there has been a rapid growth of mobile phone usage since the last five years and most of the people have access to them. Recent initiatives by the government have made it possible for all Batswana to have access to different mobile networks, backbone network, international connectivity, national optic fibre and nteletsa 2 (More, 2015:3). On the contrary, a research done by Botswana Technology Centre (2005) and Nkwe (2012) states that most of the rural dwellers does not have access to ICT tools.

On conclusion, it can be stated that, most of the SMEs found in rural areas have access to few limited ICT tools namely computers, radio, cellphones. They do not have access to all the ICT tools but the few that they can access they actually use it in their business. A number of interventions are necessary to enable SMEs in rural areas to access all the ICT tools.

- Question 2. What are the key driving forces of ICT adoption by SMEs in Borolong area?

The second question of the study wanted to find out the drivers of ICT adoption by SMEs in Borolong area of Botswana. The research findings indicated that most of the respondents (57%) have adopted ICT because they have been driven by the flexibility that ICT brings into the business. The study has indicated that respondents who are in a position to take advantage of flexibility of ICT are mostly those who are competent in using ICT tools. ICT can offer flexible trading hours at any time of the day (24 hours, 7 days a week). Because they mostly use cell-phones for communication they are able to advertise their products and services through the social media at any time. They can also sell and buy resources through a borderless environment and this is made possible by the flexibility of ICT tools. Lastly ICT offers SMEs flexibility and cheaper solutions in order for them to achieve their business objectives.

The study has also shown that only three per cent (3%) of the respondents has indicated globalization as their driver towards ICT adoption of ICT. These respondents are those who are involved in trading their products around the globe and ICT has made their trading effective and efficient. A cross tabulation of competency in using ICT tools and ICT drivers has indicated that most of the respondents who are not competent in using ICT tools have indicated the government as their driver towards ICT adoption.

This can be true because the government has many initiatives geared towards encouraging SMEs to adopt ICT into their business.

The study finding are in line with a study done by Chandamoyo and Dumbu (2012) who have indicated that the following are drivers for ICT adoption in Botswana: globalization, government, flexibility, innovation and competitive edge. Similarly, in this study the respondents have also indicated the same ICT drivers like ones mentioned above and this shows a correlation with the literature. SMEs from different areas will have different drivers of ICT adoption and in Chandamoyo and Dumbu (2012), they found that SMEs in Botswana are driven to adopt ICT because they want to attain competitive edge.

- Question 3. What are the effects of ICT adoption by SMEs on production in the Borolong area?

Regarding the third question of the research, it wanted to find out the effects of ICT adoption by SMEs on production. The respondents were asked to choose from a list of options designed to best describe the effects of ICT adoption on production. All the responses were positive from list of variable given hence it can be concluded that SMEs who use ICT into their firms have experienced a positive effect on production. They have gained a positive advantage particularly in areas such as production efficiency, fast and accurate decision making, information gathering and dissemination, inventory control, quality of products, improved production operations, innovation and lastly employees can work remotely.

The research findings correlate positively with the information from the literature on effects of ICT adoption on production. According to Chibelushi (2008:730), ICT provides SMEs with the opportunity to conduct business anywhere and Ongori (2009:80) stated that ICT adoption by SMEs provides means to access, process and distribute greater amounts of information to concerned personnel. Franco *et al* (2012:26) also stated that ICT adoption can greatly reduce production costs and makes production processes to be more efficient and Improve quality of products. ICT environment helps in fast and accurate decision – making by the SMEs due to increased mobility (Kushwaba, 2011:2235). Apula and Latham (2011:52) indicated that ICT adoption leads to better inventory control, it enhances innovativeness and enterprise performance.

- Question 4. What are the barriers towards SME's adoption of ICT tools in Borolong area?

The fourth question of the research related to the barriers towards SMEs adoption of ICT tools. The study found that SMEs in Borolong area of Botswana face an array of barriers like other SMEs in other parts of Botswana and the world at large. Respondents were asked to choose from a list of options designed to best describe the different barriers that they encountered. Majority of respondents indicated high set-up cost of ICT tools as their main barrier followed by those who experienced geographical factors as their barrier. Other barriers indicated by respondents includes ever changing ICT set-up, lack of necessary IT skills, resistance to change and lack of awareness about ICT, inadequate knowledge about how to strategically use of ICT, security reasons and poor management styles.

These research findings are consistent with information from the literature review. From the literature review, it shows that, Ongori (2009:81) clearly stated that the barriers to ICT adoption are inadequate knowledge about how to strategically use ICT, lack of appropriate IT skills, the constantly changing ICT environment, high setup cost of ICT tools and geographical factors. And the study done by Dias *et al*. (2005:730) mentioned security problems, management styles and resistance to change as among barriers to ICT adoption.

- Question 5. Are funds and training programmes available to assist SMEs of the Borolong area in adopting ICT into their businesses?

The fourth and final question of the study wanted to find out if funds and training programmes are available to assist SMEs to adopt ICT in Botswana. The respondents were asked to indicate the level of funding support that they receive from the government. Majority of respondents (65%) indicated that indeed they are being supported financially by the government of Botswana. The remaining per cent of respondents who disagreed that they are being assisted with funds to adopt ICT are those whose enterprises are not formally registered. Most of the funding assistance is only given to enterprises that are formally registered with the department of registry of companies (Ministry of Trade). The respondents were also asked to indicate the level of satisfaction with regard to the training programmes that they are provided with to assist

in ICT adoption. A total of seventy nine per cent (79%) indicated that they are satisfied with the training programmes provided by the government of Botswana. This high percentage is due to the fact that, everyone is allowed to attend training programmes without any restrictions.

The above study findings correlate positively with the literature review. According to Moaisi (2005:45), there are many programmes that are aimed at assisting SMEs with funds and training programmes. The literature has indicated a lot of programmes such as;

- CEDA – disburses subsidised funding to SMEs
- BIDPA- provides necessary training to SMEs
- Enterprise Botswana- train SMEs to access both local and external markets
- DTVET- provides training in geared at developing technical and entrepreneurial skills
- BOBS- provides training and facilitating linkages with consultants and financiers
- BDC- it provides loans
- NDB- it's a financial institute that that provides a wide range of financial services
- BOCCIM- provides advocacy and training opportunities to SMEs.
- LEA- train SMEs and facilitates access to finance
- YGF- provides funds
- E-YEP- provides financial assistance in the form of grants
- Young Farmers Fund- provides funds to SMEs

When looking at all these programmes that are aimed at assisting SMEs with funds and training programmes, it can be concluded that indeed the government of Botswana is providing sufficient training and funding programmes to SMEs and these positively correlates with the research findings.

## 4.5 Conclusion

The results of the data gathered from the questionnaire have assisted the researcher to reach conclusions with regard to the research questions. Through these results, the researcher discovered that SMEs in rural areas have access ICT tools but limited only to certain ICT tools. It's only the radio, cellphones and government computers located in

government departments in rural areas. The government has allowed SMEs in rural areas to use their computers to do basic things like printing, making copies and sending emails. The research also revealed that SMEs in rural areas are faced with an array of stumbling blocks to ICT adoption and the most experienced barrier by most respondents. The research findings also showed that ICT adoption has a positive effect on production of SMEs and the overall business at large. It is also clear that the government of Botswana has set out a lot of programmes aimed at funding and training SMEs. On conclusion, it can be said that, ICT adoption by SME's owners has a positive effect on their production and ultimately on the overall business.

## CHAPTER FIVE: SUMMARY, RECOMMENDATIONS AND CONCLUSION

### 5.1 Summary of the study

The overall aim of this research was to investigate the effects of ICT adoption by SMEs owners on production in the Borolong area of Botswana. The study has done an intensive research through the literature review on the effects of ICT adoption by SMEs on production. The study used a questionnaire as a data collecting instrument and primary data was collected. The collected data was intended to answer the research questions that were drafted to address the research problem of the study. The results obtained through the empirical study proved the validity of the research problem and brought promising answers to the drafted research questions. Both the research results and the literature review provide valuable insights on how ICT can assist SMEs to improve their production and attain the overall business objectives. The results showed that, even though there are barriers that hinder SMEs from adopting ICT, on the other hand there are many positives that come with ICT adoption in to the firm.

The SMEs that are located in Borolong area do not have enough access to all ICT tools. They are only able to access few ICT tools namely radio, cellphones, landline telephones and government computers. The SMEs in rural areas use the government computers to do printing, emailing and making copies. Most SMEs mostly use the radio as a medium of information exchange. They use the cellphone to exchange information with other SMEs and business partners. On the positive note, there has been a rapid growth of mobile phone usage on recent years and most of the people have access to them. The government has also introduced a lot of initiatives that provide universal access to different mobile networks like nteletsa 2, national optic fibre, International connectivity and the backbone network called Botswana Telecommunication. More interventions are necessary to help SMEs in rural areas to have access to all the ICT tools.

Most of the SMEs in the Borolong area of Botswana have realized that, for them to achieve their business objectives they have to adopt ICT into their business. There are a number of drivers of ICT adoption that have been identified namely; globalization, government, flexibility, innovation and competitive edge. Most of the respondents have indicated that they are being driven to adopt ICT tools by the flexibility of ICT tools.

ICT offers SMEs flexibility of trading at any time. It also offers a borderless environment where SMEs can buy and sell their products and services anywhere around the globe. Studies have shown that ICT offers SMEs flexibility and cheaper solutions in order for them to achieve their business objectives. It can be concluded that most of the SMEs in the Borolong area of Botswana has realized the flexibility that ICT can bring into the business hence most of them have adopted ICT into their business mainly because of the positive effect ICT brings to the business through its flexibility impact in business operations.

The concept of ICT adoption is still new in Africa and as such continues to face an array of challenges. The SMEs in Borolong area of Botswana have indicated that high set-up cost of ICT tools as their main barrier because it's too expensive to set them up. Even trained experts in this field when hired to help charges high fees to perform the task. The other barrier that they experienced is geographical factors. The SMEs of the study are located in rural areas and as such they face network problems. Most ICT tools needs good network to function because they use the internet. Adding to that, fixed lines connectivity is also inadequate in rural areas and this makes information diffusion very difficult. ICT set-up changes frequently and constant updates are necessary to make the tools to function at optimum. These frequent updates come with a cost and they are also time consuming. IT specialists are needed to do those updates and they charge really high fees to perform those updates hence the ever changing ICT set-up is another barrier experienced by SMES in terms of adopting ICT tools.

To operate ICT tools needs IT skills and most of the SMEs owners do not have those skills hence it creates a barrier for them. Other barrier towards ICT adoption is that some respondents are too resistance to change and as such they do not want to adopt ICT into their business. ICT adoption is highly strategic in that it is potential for the survival and growth for businesses and most of the SMEs lacks the knowledge about strategic use of ICT tools hence its among the barriers respondents experiences. The other barriers included security reasons because most of ICT tools are susceptible to be stolen and bad management styles which do not value the adoption of ICT tools.

It was found that even if very small, a firm has the opportunity to attain competitiveness and outmanoeuvre its rivals if it constructs a culture that fully utilizes the opportunities that come with ICT adoption. The study findings revealed that most of the respondents

have experienced positive effects due to ICT adoption. Through the adoption of ICT, they are now able to produce more with less production cost. Through fast information dissemination the firms are able to make fast and accurate decision making and they are also able to gather relevant information that will be used enhance performance of the business and also information dissemination is improved. All these factors will lead to improved production operations and quality of products. Through the use of computers, the firms are able to capture all their inventory and this will lead to improved inventory control. ICT adoption into their business also leads to firms being more innovative because they will be able to gather information that they can use to produce better and innovative products. Lastly, through the use of ICT in the firm employees will be able to work remotely. All these factors indicate that ICT adoption has positive effects on the production of SMEs.

The study results indicates that ICT adoption has a positive effect on the production of SMEs and the study continued and asked the respondents the value ICT adoption has done on the overall business of the firm. Most of the respondents indicated that ICT adoption has given their firm a competitive advantage over their rivals and these has resulted in the firm attaining a bigger market share. This has resulted in increased sales and revenue. ICT adoption has led to the firm marketing themselves efficiently with less costs and ICT has also enabled the firm to penetrate new markets. ICT adoption has improved the firm's responsiveness to customer demands and ICT has also enabled them to integrate all their business activities. Overall, ICT adoption has enabled firms to achieve their stated goals and objectives. Clearly there is a positive correlation between responses on the effect of ICT adoption on production and its effects on the overall business. This correlation suggests that ICT adoption is becoming a critical aspect for the success of a business.

In light of the government's role, the study has revealed that the government's assistance comes in two folds namely funding and providing training to SMEs. These activities are done by the government to facilitate the ICT adoption process. The government through its programmes has assisted many SMEs with funds and training programmes in the Borolong area of Botswana. The result findings revealed that sixty one percent (61%) of the respondents agrees that the government of Botswana is supporting them with funds. On another question, seventy nine per cent (79%) of the respondents indicated that they are satisfied with the training programmes provided.

The only worrying factor that respondents showed concern about is that the funding support is only given to formally registered companies and excludes those that are not registered hence a good number of SMEs in Borolong area of Botswana that are not registered are negatively affected by this exclusion. Based on the results, this study concludes that all sectors which deals with ICT adoption should work together in a networked and a coordinated manner in order to bring ICT diffusion to the required level.

## 5.2 Recommendations

The following are recommended to SMEs for them to be able to successfully overcome barriers and adopt ICT into their enterprises:

- Employees of SMEs must be educated about ICT and its benefits. SMEs should categorise ICT as a functional area in their businesses and by so doing, they will value the presence of ICT tools in their business and eventually they will start using it to the benefit of the whole enterprise. When recruiting staff, they should employ people with IT skills and experience to do the job.
- Managers of SMEs should be involved in strategic collaboration with other more established enterprise seeking mutual learning and growth in ICT aspects.
- Because SMEs cannot afford to pay IT specialists, instead they should temporarily hire a consultant who should train and give them advice and after that they should be able to do those operations on their own.
- More seminars, conferences, workshops should also be done so that SMEs managers can exchange ideas with regard to ICT adoption and its benefits.
- The government should simultaneously improve electricity distribution and network in rural areas because these are necessary to aid ICT adoption and usage. These developments will enable SMEs to have more access to ICT tools because lack of grid electricity and poor networks have been reasons why there has been poor accessibility of ICT tools in rural areas.
- The government should subsidise the costs of ICT tools more specially to SMEs because they are way too expensive for them. And the funding and training support provided by the government should also be intensified.
- The government should reduce electricity connection fee to firms because it is too expensive for SMEs to afford.

- The government should also reduce the paper work that is done when registering SMEs because it is more complicated for SMEs to complete.

## 5.3 Conclusion

The findings of the study managed to answer all the research questions and the study was able to find the cause of the research problem. The research problem is that the rate of ICT adoption by SME's owners on production in Borolong area of Botswana is very slow and as such the research wanted to find out what could be the cause of this slow rate of ICT adoption. Initially the study wanted to find out if the SMEs in the Borolong area of Botswana have access to ICT tools and the findings revealed that they have access to a limited number of ICT tools namely radio, cellphone, telephone landlines and government computers. The study also indicated that flexibility of ICT tools as their main drive of ICT adoption. Then study also investigated the barriers that lead to this slow rate of ICT adoption. An array of barriers have been indicated and discussed. The study found out that high set-up cost as the reason why there is a slow rate of ICT adoption in the Borolong area. The discussion on how the government could help the SMEs in enhancing ICT adoption, the study found that the government could do so by providing funding and training assistance. The study also hinted to the SMEs owners the positives that come along with adopting ICT into their firms and how ICT adoption would benefit the overall business. The information contained in this paper will help SMEs and other related stakeholders to work together and improve the rate of ICT adoption in the Borolong area.

## 5.4 Limitation of the study

- Language barrier- some of the respondents are not educated hence they needed interpretation to Setswana.
- Reluctant to answer- other respondents were just too reluctant to answer some questions even though they were told about the confidentiality of their responses.
- Expensive to move around- their operating areas are located at a distance from each other hence it was expensive and time consuming to move around them.

## 5.5 Areas for further research

More research should be done in other rural areas of Botswana and also in other countries to see if similar outcomes will be found. Research should also be done on demographic characteristics of SMEs in order to determine how they affect ICT adoption by SMEs. More research should be done on accessibility of funds by SMEs in Botswana, more especially those in rural areas because most SMEs in rural areas normally experiences financial assistance problems by the government and other stakeholders.

## REFERENCES


Abedi, M. & Khodamoradi, S. 2011. The importance of Information and Communication Technologies (ICT) in agriculture development in developing countries. *Journal of American Science*, 7(3):122-165.

Alam, S.S. & Noor, M.K. 2009. ICT Adoption in Small and Medium Enterprises: An Empirical Evidence of Service Sectors in Malaysia. *International Journal of Business and Management,* 2(4):112-125.

Antlova, K. 2009. Motivation and Barriers of Adoption of ICT adoption in small and medium sized enterprise. *E+M Ekonomie a Management*, 12(2):140-155.

Apulu, I. & Ige, E.O. 2011. Are Nigerian SMEs Effectively Utilizing ICT? *Journal of Business and Management*, 6(6):207-214.

Apulu, I. & Latham, A. 2011. Drivers for Information and Communication Technology Adoption: A case study of Nigerian Small and Medium Sized Enterprises. *International Journal of Business and Management,* 6(5):51-60.

Bayo-Moriones, A., Billón, M. & Lera-López, F 2013. Perceived performance effects of ICT in manufacturing SMEs. *Industrial Management & Data Systems*, 113(1):117 – 135.

BIDPA Report. 2007:01-178.

BIDPA Report.,2009. Performance and Competitiveness of Small and Medium-sized manufacturing Enterprise in Botswana.

BOTEC 2005 - Botswana Technology Centre: Community User Information System (CUIS) feasibility study.

Botswana Government. 2010. Maitlhamo: National ICT Policy. pp.12-111.

Botswana Government. 2012. Long Term Vision for Botswana: Towards Prosperity for all (Vision 2016), Presidential Task Group for a Long Term Vision for Botswana. Gaborone, September, pp.04-150.

Bradd, T. 2009. Maps of Botswana.http://www.Bing.com. Retrieved October 2015.

Bryman, A. & Bell, E. 2011. Business Research Methods, 2nd ed., Oxford: Oxford University Press.

Brynjolfsson, E. & Hitt, L.M. 2009. Firm-level evidence on the returns to information systems spending. *Management Science*, 42(4):541-558.

Cant, M., Gerbel-Nel, C. & Kotzé,T. 2005. Market Research. Claremont: New Africa Books (Pty) Ltd.

Carbonara, T. 2005. ICT for SMEs in rural areas, Oxford: University Press.

Chandamoyo, P. & Dumbu, E. 2012. Managerial deficiencies in the Small and Medium Enterprises (SMEs) in the craft industry: An empirical evidence of SMEs at Great Zimbabwe in Chief Mugabe's area. *European Journal of Business and Management*, 4(10):123-129.

Chibelushi, C. 2008. Learning the hard way? Issues in the adoption of new technology in small technology oriented firms. *Education + Training*, 50(9):725-736.

Churchill, G.A. 2011. Market Research. Methodology Foundations. Chicago: Gryden Press.

Citizen Entrepreneurial Development Agency (CEDA) 2009. Annual Financial Report.

Cooper, D.R. & Schindler, P.S. 2010. Research in Business methods. Irwin: McGraw-Hill.

Department of Industrial Annual Report 2014.

Dewet, A. 2007. Marketing Research. Cape Town: Tygerberg College Printers.

Dias, B., Franco, M. & Pereira, C. 2012. The role of Information and Communication Technologies in SMEs: Case study of the Turistrela group. *A Pathmaking Journal*, 2(1):23-43.

Dimalang, B. 2015. ICT in ruaral areas in Botswana. Botswana Gazzette.04, 22 March.

E-innovation Youth Empowerment - Annual Report 2009.

Esselaars, S., Stork, C,. Ndiwalana, A. & Deen-Swarrary, M. 2007. ICT usage and its Impact on Profitability of SMEs in 13 African Countries. *RIA*, 4(1):87-100.

Franco, M., Dias, B. & Pereira, C. 2012. The role of Information and Communication in SMEs: A case of study of the Turistrela Group. *A Pathmaking Journal*, 2(1):23-43.

Galloway, L. & Mochrie, R. 2005. The Use of ICT in Rural Firms. *Policy-Orientated Literature Review*, 7(3):33-46.

Grandon, E. & Pearson, J. (2009). Electronic commerce adoption: an empirical study of small and medium US businesses. *Information and Management*, 42 (1):197-216.

Gravetter, F. J., & Forzano, L.B. 2012. Research methods for the Behavioural Sciences, 4th Edition: Linda Schreiber-Ganster.

Hazbo, S., Arnela, C., & Chun-Yan, H. 2008. ICT adoption model of Chinese SMEs. *International Journal of Business Research*, 44(5):161-165.

International Research Center. 2007. Economic Development and the Rise of the Virtual Corporation, pp.03-132.

Iyanda, O. & Ojo, S.O. 2008. Motivation, influences, and perceived effect of ICT adoption in Botswana organizations, *International Journal of Emerging Markets*, 3(3):311 – 322.

Kalusopa, T. 2005. The challenges of utilizing information communication technologies (ICTs) for the small-scale farmers in Zambia. *Library Hi Tech*, 23(3):414-424.

Kongolo, M. 2010. Job creation versus job shedding and the role of SMEs in economic development African. *Journal of Business Management,* 4(11):2288-2295.

Korpelainen, E. and M. Kira 2010. Theories of ICT system Implementation and adoption. International Journal of Technology, 1(14):32–53.

Kozma, B. 2005. Obstacles to the growth of SMEs in South Africa: A principal opponent analysis approach. *African Journal of Business Management*, 4(5):729-738.

Kumar, R. 2005. Research methodology: A step-by-step guide for beginners. London: Sage Publications.

Kushwaba, G.S. 2011.Competition Advantage through Information and Communication Technology enabled Supply Chain Management Practices. *Information Journal of Enterprise Computing and Business Skills,* 1(2):2230-8849.

Leedy, P. D. & Ormrod, J. E. 2005. Practical research planning and design. 8th Ed. USA: Pearson Merrill Prentice Hall.

Local Authority Enterprise (LEA). Annual report 2012.

Longenecker, G., Moore, C.W. & Petty, J.W. 2006. Small Business Management - An Entrepreneurial Emphasis. Thomson: South-Western.

Maldeni, H. M. C. M. & Jayasena, S. 2009. Information and Communication Technology Usage and Bank Branch Performance. *The International Journal on Advances in ICT for Emerging Regions*, 2(2):29 – 37.

Malibala, K. 2012. Legal forms of a business structure. *DailyNews* , 04, 25 June.

MBA Business Research Workshop handouts. 2014

Milne, D & Watkins-Mathys, L. 2010, ICT adoption and Development of E-business among SMEs in South Africa. High Wycombe: Buckinghamshire.(Thesis-PhD).

McNabb, D. 2009. Research in Public Administration. New York: Sharpe.

Moaisi, D. 2005. Factors Affecting the Growth of Micro and Small manufacturing Enterprises in Botswana. South Africa: University of Stellenbosch (Dissertation-MBA).

Modimogale, L. 2008. ICT and SME competitiveness in South Africa. How SMEs could use ICT to become competitive in South Africa. Pretoria: University of Pretoria (Mini-Dissertation).

Modimogale, L. & Kroeze, J.H. 2011. The Role of ICT within Small and Medium Enterprises in Gauteng. *Communication of IBIMA*, pp.01-13.

Mogwebi, T. 2012, The official Newsletter of the citizen Entrepreneurial Development Agency. 1st Issue, March.

Montsho, T. & Moreki, J.C. 2012. Challenges in commercial pig production in Botswana, *Journal of Agricultural Technology*, 8(4):1161-1170.

More, K. 2015. ICT key to economic growth. *Botswana Daily News*.03, 18 May.

Motsoeneng, L. 2014. Measuring the Adoption of ICT levels and the perceived Impact on Performance within the SME manufacturing sector in South Africa. Johannesburg. University of Witwatersrand (Thesis - PhD).

Mutula, S.M. & Van Brakel, P. 2006. E-readiness of SMEs in the ICT sector in Botswana with respect to Information access. *The Electronic Library*, 24(3):402-417.

Mutula, S.M. & Van Brakel, P. 2007. ICT Skills Readiness for the Emerging Global Digital Economy among Small Businesses in Developing Countries: Case Study of Botswana, *Library Hi Tech,* 25(2):231-245.

Mwobobia, F.M. 2012, Empowering of small- Micro and Medium Enterprises (SMME's): A case of Botswana. *Journal of Business and Management Research*, 1(4):88-98.

Naude, D. 2007. The Degree of Organisational Performance Measurement in SMEs: A focus on ICT enterprises. Pretoria: University of South Africa (Thesis-PhD).

Nkwe, N. 2012. Role of SMEs in Botswana. *American International Journal of Contemporary Research*, 2(8):29-37.

Ongori, H. 2009. Role of Information Communication Technologies Adoption in SMEs: Evidence from Botswana. *Research Journal of Information Technology*, 1(2):79-85.

Pansiri, J. & Temtime, Z. 2008. Assessing managerial skills in SMEs for capacity building. *Journal of Management Development*, 27(2):251 – 260.

Peel, M.J. & Wilson, N. 2006. Working capital and financial management practices in the small firm sector. *International Small Business Journal,* 14 (2):52–68.

Proctor, T. 2008. Essentials of Marketing Research. Harlow: Pearson Education Limited.

Procter, C.T. & Shemi A.P. 2013. Challenges of E-Commerce Adoption in SMEs: An Interpretive Case Study of Botswana. *Botswana Journal of Business*, 6(1):17-30.

Rastrick, K. & Corner, J. 2010. Understanding ICT Based Advantages: A Techno Savvy Case Study. *Interdisciplinary Journal of Information, Knowledge, and Management*, 6(5):50-60.

Research Advisors. 2006

Ritchie, B. & Brindley, C. 2005. ICT Adoption by SMEs: Implications for Relationships and Management. *New Technology, Work and Employment*, 20(3):205-217.

Sampong, F. & Akomea-Bonsu, C. 2012. The Impact of Information and Communication Technologies (ICT) on Small and Medium Scale Interprises (SMEs) in the Kumasi Metropolis, Ghana. *European Journal of Business and Management*, 4(20):152-158.

Saunders, M., Lewis, P. & Thornhill, A. 2011. Research Methods for Business Students. Gosport: Prentice-Hall.

Schubert, P. & Leimstol, U. 2007. Importance and use of information technology in Small and Medium-sized companies. *Electronic markets*, 17(1):38-55.

Sebusang, S.E.M. & Masupe, S. (2005). ICT Development in Botswana: Connecting for Rural Communities. Gaborone: University of Botswana (Mini-Dissertation).

Tustin, G., Ligthelm, N., Martins, O. & Van Wyk, P. 2005. Marketing Research in Practice . Pretoria: UNISA Press.

Wheather, C.P. & Cook, P.A. 2012. Statistics usage to Understand the Environment. New York: Routledge Publishing.

World Bank. 2006. Information and communications for development – global trends and policies, Chapter 4: the role of ICT in doing business, 2(3). http://rru.worldbank. Org.

Yin, R. K. 2009. Case Study Research: Design and Methods. New York: Sage.

Yusuf, A.A. 2013. Impact of ICT on SMEs. *International Business Management Journal*, 7(8):04-90.

Zindiye, S. 2008. An Empirical Investigation into the Factors Affecting the Performance of Small and Medium Enterprises in the Manufacturing Sector of Harare, Zimbabwe. South Africa. University of Fort Hare (Thesis – PhD).

Addenda A **QUESTIONNAIRE COVERING LETTERS**

Dear Respondent,

RE: RESPONDENT IN RESEARCH

I am a postgraduate student pursuing my Masters in Business Administration at North West University in South Africa. I am currently conducting research study entitled **"Effects of ICT adoption by SMME's owners on Production in Borolong area of Botswana"** as one of the major requirements. In this regard, you have been selected to take part in this study as a respondent. This survey will investigate your perceptions of the effects of ICT adoption by SMEs owners on production in Borolong area of Botswana.

Please complete all items to reflect your opinions and experiences. Please answer all the questions freely. You cannot be identified from the information you provide and nor information about individuals will be given to any organization. The data collected will be used for the purposes of this academic research only. The purpose of this questionnaire is to assess effects of ICT adoption on production. Please select the response from among those given that best represents your views.

Your participation is important for the success of this project and I greatly appreciate your contribution.

Sincerely,

Gosaitse Chube
Student number: 16629523

Addenda B **QUESTIONNAIRE**

## EFFECTS OF ICT ADOPTION BY SMMEs OWNERS ON PRODUCTION IN BOROLONG AREA OF BOTSWANA

### Instructions

- Indicate your answers by marking with an (x) in the right box. This applies to multiple choice and Likert scale type statements.
- Express yourself freely when answering open-ended question.
- Questions which are not understood by the respondents will be further explained.

**Section A**: Demographical details of respondents

1. Status of respondents

| | |
|---|---|
| Owner | |
| Manager | |

2. State your gender

| | |
|---|---|
| Male | |
| Female | |

3. In what age group do you belong?

| | |
|---|---|
| < 20 years | |
| 20 – 29 years | |
| 30 – 39 years | |
| 40 – 49 years | |
| 50 years and above | |

4. Indicate your highest education qualification

| | |
|---|---|
| Never been to school | |
| Secondary certificate | |
| College diploma | |
| University degree | |
| Masters | |

**SECTION B**: Biographical details of SMEs

5. Indicate the business sector your SME belong to.

| | |
|---|---|
| Brick-moulding | |
| Carpentry | |
| Milling | |
| Metal-work | |
| Printing | |
| Sewing / knitting | |
| Agricultural projects | |
| Food production | |
| Car wash | |

6. Number of employees in your business

| | |
|---|---|
| Less than 6 employees | |
| 6 – 25 employees | |
| 26 – 50 employees | |

7. What is your business's annual turn-over?

| | |
|---|---|
| Less than P50 000.00 | |
| P50 000.00 to P100 000.00 | |
| Above P100 000.00 | |

8. Is your business formally registered?

| | |
|---|---|
| Yes | |
| No | |

9. State the number of years your enterprise has been operating.

| | |
|---|---|
| Less than 5 years | |
| 5 to 10 years | |
| Above 10 years | |

**SECTION C**. Management / Operations activities

10. Indicate the level of your business's accessibility to ICT tools.

| | |
|---|---|
| Poor | |
| Below average | |
| Average | |
| Good | |
| Excellent | |

11. What is your key driving force of ICT adoption?

| | | |
|---|---|---|
| 1 | Globalisation | |
| 2 | Government | |
| 3 | Innovation | |
| 4 | Flexibility | |
| 5 | Competitive advantage | |

12. Do you have knowledge / competence in using ICT tools?

| | |
|---|---|
| Yes | |
| No | |

13. Indicate your barrier towards ICT adoption

| | |
|---|---|
| Lack of necessary IT skills | |
| High set-up cost | |
| Ever changing ICT set-up | |
| Geographical factors | |
| Resistance to change | |
| Lack of ICT awareness | |
| Management styles | |
| Security reasons | |
| Lack of knowledge about strategic use of ICT tools | |

**SECTION D**: Assistance from the government

14. The Government of Botswana is supporting SME's with funds to enhance ICT adoption.

| | |
|---|---|
| Strongly agree | |
| Agree | |
| Neutral | |
| Disagree | |
| Strongly disagree | |

15. How do you rate the training programmes provided by Botswana government in terms of assisting SMEs in adoption of ICT.

| | |
|---|---|
| Very satisfied | |
| Satisfied | |
| Not satisfied | |

**SECTION E**: Effects of ICT adoption on SMEs.

16. The following are effects of ICT adoption on the production of SMEs.

| | Strong agree | Agree | Neutral | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| Makes production processes to be more efficient | | | | | |
| Fast and accurate decision making | | | | | |
| Improves information gathering and dissemination | | | | | |
| Improves inventory control | | | | | |
| Improves quality of products | | | | | |
| Improves production operations | | | | | |
| Enhance innovativeness | | | | | |
| Employees can work remotely | | | | | |

17. The value ICT adoption has added to the business

| | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| Better customer responsiveness | | | | | |
| Increased efficiency of marketing | | | | | |
| Increased sales | | | | | |
| Provided competitive edge | | | | | |
| Increased revenue | | | | | |
| Firm goals and objectives are achieved | | | | | |
| Integration of all business processes | | | | | |

**SECTION F**: RECOMMENDATIONS

18. Would you recommend other SME's owners to adopt ICT into their business?

| | |
|---|---|
| Yes | |
| No | |

19. Justify your answer to the question above

……
……
……
……
……
……
……
……

20. What other assistance do you think the government of Botswana should do in terms of assisting the SMEs in adopting ICT?

……
……
……
……
……
……
……
……
……

**THANK YOU FOR YOUR COOPERATION**